

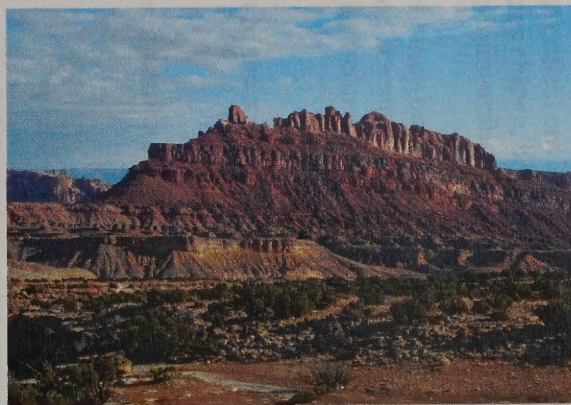
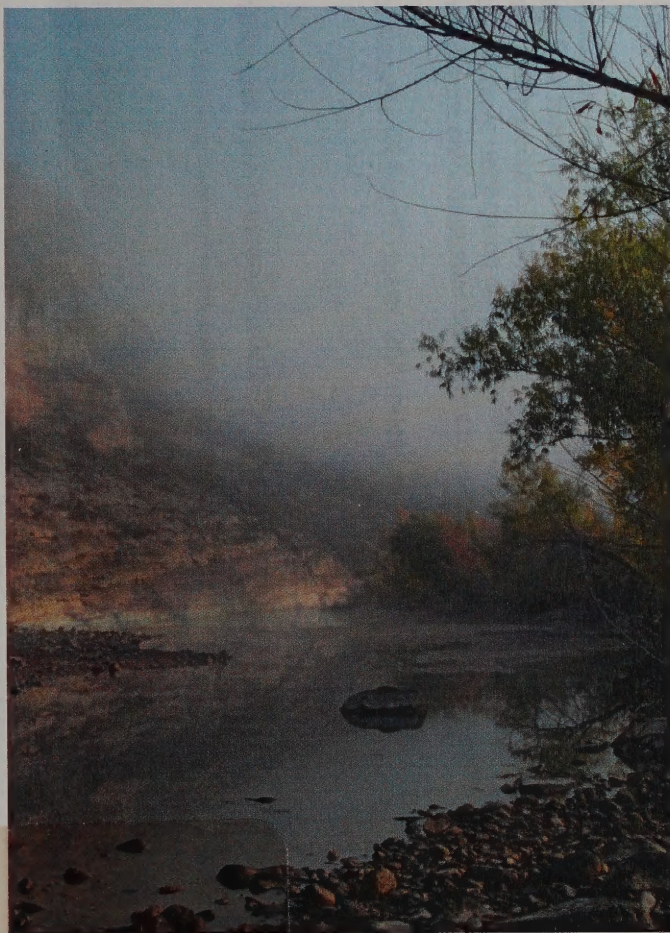


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The Bureau of Land Management's Conservation Mandate

*Areas of Critical Environmental Concern
in Arizona, Utah, Colorado and New Mexico*



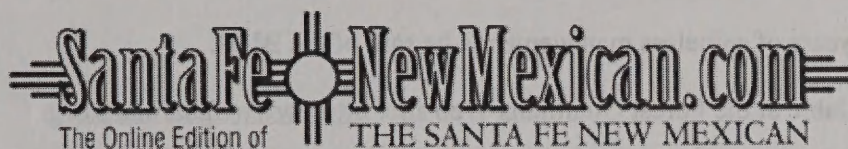
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Written by Jon-Paul Oliva, Jim Matison & John Horning

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Wednesday, March 10, 2004

Guardians Say BLM Not Protecting Critical Lands

By BEN NEARY | The New Mexican

Wednesday, March 10, 2004

The U.S. Bureau of Land Management has failed to protect millions of acres in the Four Corners states designated as areas of critical environmental concern, a Santa Fe group charges in a new report.

Forest Guardians of Santa Fe this week issued a report looking at 320 areas in New Mexico, Colorado, Arizona and Utah. The report concludes the BLM in many cases has issued leases for oil and gas exploration and cattle grazing on many of the areas.

Federal land-management laws require the BLM to establish areas of critical environmental concern and manage them to protect their outstanding values. The Forest Guardians charge, however, that the agency has fallen down on its responsibilities, especially under the current administration.

"Under this administration, they've not only ignored this mandate, but they brazenly violate it every day of the week," said John Horning, Forest Guardians executive director. It's not surprising that the Bush administration has failed to designate new areas, he said, but it has furthermore approved oil and gas leases on more than 40 of the areas in the past two years.

A private foundation provided Forest Guardians money to fund part of the report, Horning said. He declined to name the foundation.

The BLM hasn't had time to review the report and can't comment on it until it does, a spokeswoman at the bureau's Santa Fe office said Tuesday.

Among the report's findings are the following:

- Of the 320 areas in the four states, 52 have been developed for oil and gas production for a total of 838 wells.
- Of the 40 areas leased for oil and gas development in the past 24 months, the BLM only specified resource values in 19 of them and specified required mitigation measures in one of them.
- The BLM has leased 84 percent of the acreage in the areas for livestock grazing. Of those grazing allotments, 39 percent have undergone environmental analysis since 1995 and 19 percent are complying with minimum environmental standards to ensure protection of critical environmental values.
- Of 1,275 miles of streams within the areas, 268 miles are in violation of federal water-quality

standards.

Congress has instructed the BLM to protect the critical environments, Horning said, yet the agency has generally failed to act.

"They've had 26 years of spineless management," he said of the BLM.

The report is available at the Forest Guardians Web site: <http://www.fguardians.org>.

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*Forest Guardians seeks to preserve and restore
native wildlands and wildlife in the American Southwest
through fundamental reform of public policies and practices.*

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The vast majority of analyses presented in this report were compiled from BLM field data and a variety of geographic data derived from different sources, including the BLM, USGS and private sources using Geographic Information Systems (GIS) analysis. The accuracy, scale and completeness of each individual data source varies significantly and the data presented here should be viewed in that context, with the understanding that the GIS derived analyses contained within represent approximate values. Photos taken by Jim Matison unless otherwise noted. Gunnison's sage grouse cover photo courtesy of Dick Williams.

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INTRODUCTION

The Bureau of Land Management, the Nation's largest land manager, generally suffers from a myopic view of its Congressional mandate to protect sensitive natural resources on the more than 265 million acres that it manages for the American public. Though the landscapes the BLM administers are biologically diverse, scenically stunning and rich in cultural and natural history, the BLM—especially under the Bush Administration—continues to degrade these resources and ignore its conservation mandate. Under constant economic and political pressure to meet short sighted demands of extractive industries, and despite the Federal Lands Policy Management Act's (FLPMA) instruction for "the use of some of the land for less than all of its resources," the BLM continues to pursue a multiple use philosophy within ecologically sensitive areas that has prevented the BLM from embracing a conservation mandate.

A glimmer of hope for conservation reform within the agency can be found in the National Landscape Conservation System (NLCS). Established during the Clinton Administration by former Interior Secretary Bruce Babbitt, the NLCS is a network of lands comprised of National Conservation Areas (NCAs), National Monuments, Wilderness Areas and Wilderness Study Areas (WSAs), Wild and Scenic River corridors and National Scenic and Historic Trails. The NLCS has unquestionably elevated the political and public profile of the BLM and the lands it manages and has given the agency an opportunity to become a respected steward of critical landscapes. However, conspicuously absent from the NLCS are "areas of critical environmental concern" (ACECs), which comprise millions of acres of additional ecologically important and scenic landscapes. Notwithstanding the expansive scope of this landmark conservation initiative, the ecologically and culturally rich landscapes of ACECs, in part by virtue of their low public profile, are not being afforded the full protection they deserve.

The BLM's organic statute, the FLPMA, via its mandate to protect ACECs, provides the agency with clear direction to ensure that environmentally significant landscapes and outstanding natural resources are protected and restored. Passed in 1976, FLPMA articulates Congress' recognition of the fact that the American public not only valued retention of these arid ecosystems, but also the protection and restoration of their natural, cultural, historic and geologic values. It is the mandate of FLPMA, set forth in section 103, which directs the BLM to protect and conserve ecosystems in need of "special management attention" by designating them as "areas of critical environmental concern" in their land use planning process (FLPMA § 1702 (a)).

In this report, Forest Guardians analyzes the effort of the BLM in four states to protect 'areas of critical environmental concern'. The ACEC mandate, if deployed as Congress originally intended, could provide the BLM with a road map to respond to the mounting biodiversity crisis as well as meet other emerging conservation challenges and, in doing so, elevate the agency's profile as a steward of our Nation's unique natural heritage.

EXECUTIVE SUMMARY

Based on a comprehensive analysis of 320 ACECs within Colorado, New Mexico, Arizona and Utah, our study concludes that the BLM still lacks a clear and overarching conservation strategy for ACECs. Consequently the program has failed in many instances to provide real protections for a stunningly diverse variety of valuable natural resources. A lack of region-wide or even state-wide planning for ACEC designation and management has led to a piecemeal strategy for conserving our riparian and upland habitat, and sensitive, threatened and endangered species. The principal downfall to this approach is that it results in a reactive, band-aid style conservation strategy.

In more than two decades the ACEC program has existed, ACEC designations have suffered from lack of rigorous management that has prevented the BLM from meeting its conservation mandate under the spirit of FLPMA. Oil and gas development within ACECs is rampant in areas with high concentrations of these natural resources. Livestock grazing is ubiquitous within ACECs and is devastating riparian habitat and threatening the survival of protected species. Monitoring of the conditions within ACECs is, for the most part, poorly done, if it is done at all, and encroaching development on privately held inholdings is fragmenting otherwise viable habitat. As a result of these factors, water quality in many ACECs is severely compromised. Additionally, ACEC designations often fail to target the most biologically threatened pockets of BLM land.

Among the study's findings:

- 52 ACECs, or 16% of the total number of ACECs in the Southwest have been developed for oil and gas production with a total of 838 wells.
- Of the 40 ACECs leased for oil and gas development in the last 24 months, only 19 lease sale documents disclosed all of the ACEC resource values and only one document described required mitigation measures.
- 84% of all ACEC acreage is leased to the livestock industry. Among these grazing allotments, only 39% have undergone any environmental analysis since 1995, and of these, only 19% are complying with minimum environmental standards to ensure protection of ACEC resource values.
- Eleven ACECs contain privately held inholdings that total over 10,000 acres each. There are currently over 547,000 acres of privately held inholdings within the approximately 3.2 million acres of ACECs in the Southwest.
- Only 32 ACECs, or less than 1% of the total number of ACECs in the Southwest provide habitat for eight focal fish and wildlife species for which we analyzed for because of their critical keystone, indicator or umbrella functions.
- The system of ACECs in the four corners states largely fails to ensure the protection of biodiversity because the most biologically rich areas are not even represented in the system. Of the total ACEC acreage, only 11% contains 10 or more known occurrences of federally protected species.

- Of the 1,275 miles of streams within ACECs, 21% or 268 miles are in violation of federal water quality standards.
- The BLM has largely failed to use its only monitoring tool, the Proper Functioning Condition (PFC) assessment, to monitor riparian habitat within ACECs, both in general (Table 7) and within ACECs that have directives for monitoring (Table 8).

To date, the BLM has provided very little in the way of detailed management plans for the majority of ACECs. The directives that establish ACECs are often little more than a list of the resource values intended for protection and a short, often vague, description of land use restrictions to be put in place. Very few ACECs have site-specific management plans that are detailed enough to allow for land managers to implement needed conservation measures. Equally distressing is the lack of agency focus on monitoring the conditions within ACECs. Very little information on the efficacy of management directives exists, and much of what does exist is disorganized and of very little scientific value. Without this crucial feedback, there is no way for the agency to determine if the management directives for a particular ACEC are functioning adequately to protect resource values or if directives require modification or additional management directives are necessary.

Public dissemination of information related to the BLM's efforts to manage ACECs is also lacking. With the notable exception of New Mexico, none of the states produce regular reports for the public on the implementation of ACEC management plans, and all of the states have a problem with following through on even the limited management directives in place for the majority of ACECs. In addition to these disappointing failings, the BLM is unresponsive to public information requests. For the four corners state offices of the BLM from whom we requested ACEC information under the Freedom of Information Act (FOIA), agency responses took anywhere from four months to over a year, and in the case of Colorado, the agency never responded at all. Without a transparent and regular reporting process, the public is kept in the dark and the agency is shielded from critical feedback when it fails to implement management directives or monitor resource values.

Finally, the report suggests that the BLM suffers from a lack of will to implement conservation actions that disrupt the activities of politically powerful and/or historic constituencies. The oil and gas and livestock industries, developers and, increasingly, off-road vehicle users have unprecedented influence over how the agency handles the designation and management of ACECs. The BLM is often unwilling to designate ACECs where the most serious threats to resource values occur and where the most controversy over management actions is likely to take place. Where ACECs do exist in these conditions, a failure to implement necessary management directives or to enforce existing management directives has almost universally compromised the effectiveness of the ACEC designation. A fundamental change is necessary, from the highest levels of the Interior Department to the on-the-ground land managers that recognizes the need to limit or discontinue destructive land uses on the small percentage of lands that are truly "areas of critical environmental concern".

PROGRAM OVERVIEW

History of Program

The origin of FLPMA and the concept of ACECs originated in the 1960s when congress created the Public Land Law Review Commission. The Commission's five year study culminated in the seminal report *One Third of the Nation's Land*, published in 1970 and detailing the need for comprehensive land use planning (Public Land Law Review Commission, 1970). The report led to the introduction of formal legislation that ultimately evolved into FLPMA, which was finally passed by Congress in 1976.

Administration of ACECs

One way states can vary in how they designate and manage ACECs is in the type of plan that they use to administer their ACECs (Table 1). There are generally two types of Land Use Plans that govern ACEC management, programmatic (being designated in a Regional Planning document such as a Resource Management Plan, or RMP) or site specific plans (dealing a particular individual ACEC). Occasionally, ACECs are designated programmatically and then site specific plans will be developed later to ensure that adequate site specific management actions are being taken. In general, site specific management plans are less common, take more upfront work, and do a better job of clearly outlining management objectives than do the programmatic plans.

Table 1. Summary of ACEC management plan types for the four corners states.

State	Programmatic Management Plans	Site Specific Management Plans	Programmatic with Supplemental Site Specific Plans	No Plan Type / Unknown
Colorado	47	1	n/a	22
New Mexico	51	17	12	54
Arizona	39	3	1	14
Utah	45	5	1	9

When analyzed by plan type, it is apparent that all the states typically opt for Programmatic designations, usually during the production of new RMPs, although Programmatic Plan Amendments for ACEC designation are possible (Table 1).

For both types of planning processes utilized to designate ACECs, the BLM always incorporates 'directives' into the plan to ensure that appropriate special management actions are implemented for the protection of resource values. Often these directives are either inadequate to protect important values or are not enforced. More information about the frequent inadequacy of BLM directives is detailed in the section on threats to ACECs and in the individual ACEC profiles.

Summary of Areas Designated

In the 28 years since the passage of FLPMA, the BLM has still not set forth a clear set of regulations governing the establishment or management of ACECs, instead choosing to leave the implementation of ACECs up to the individual state offices. Within the four corners states of Colorado, New Mexico, Arizona and Utah, there is considerable variation in the number of ACECs designated, the average size of designated ACECs and the frequency of designation since the passage of FLPMA.

Table 2. Summary of ACEC numbers and size for the four corners states.

State	Total BLM Acreage	Number of ACECs	Average Size	Total ACEC Acreage
Colorado	8,349,764	70	5,523	386,584
New Mexico	13,493,491	134	3,933	526,959
Arizona	12,130,069	57	18,193	1,037,014
Utah	22,614,690	60	20,980	1,258,825
Total	56,588,014	321	12,157	3,209,382

The large variation in number of designated ACECs and average and total ACEC acreage indicates that states have taken vastly different approaches to ACEC designation (Table 2). When looking at the percentage of BLM land designated as ACECs, we find that the numbers for each state are relatively small, Colorado having just over 4.5% of its BLM land designated as ACECs, New Mexico having just under 4%, Arizona having slightly over 8.5% and Utah having 5.5%. However, the average size of ACECs is an order of magnitude larger in Arizona and Utah than in Colorado and New Mexico. From this data, it is clear that the primary difference from state to state is the tendency to either designate many small ACECs (Colorado and New Mexico) or a smaller number of relatively larger ACECs (Arizona and Utah).

Table 3. Summary of ACEC designations by state and field office.

State / Field Office	Total ACEC Acreage	Total BLM Acreage	Percentage of BLM Acreage Designated as ACECs
COLORADO			
Glenwood Springs	16,515	516,641	3%
Grand Junction	29,701	1,272,616	2%
Gunnison	68,042	631,311	10%
Kremmling	516	384,913	<1%
La Jara	56,881	275,948	21%
Little Snake	26,853	1,357,883	2%
Royal Gorge	80,162	669,038	12%
Saguache	1,361	234,426	<1%
San Juan	0	665,121	N/A
Uncompahgre	9,146	881,589	1%
White River	105,490	1,454,937	7%
TOTAL	394,715	8,344,425	5%
NEW MEXICO			
Albuquerque	57,624	957,904	6%
Carlsbad	14,395	2,127,946	<1%
Farmington	23,900	1,392,437	2%
Las Cruces	210,296	5,436,668	4%
Roswell	50,741	1,472,509	3%
Socorro	85,657	1,504,137	6%
Taos	84,289	587,341	14%
TOTAL	526,961	13,478,943	4%
ARIZONA			
Arizona Strip	205,024	2,757,535	7%
Kingman	486,915	2,455,188	20%
Lake Havasu	32,610	1,292,271	3%
Phoenix	71,228	2,289,043	3%
Safford	43,517	1,444,072	3%
Tucson	11,375	603,607	2%
Yuma	182,655	1,286,440	14%
TOTAL	1,037,010	12,128,156	9%
UTAH			
Cedar City	0	2,166,263	N/A
Fillmore	0	4,304,045	N/A
Grand Staircase - Escalante National Monument	0	1,863,562	N/A
Kanab	0	479,688	N/A
Moab	0	1,854,372	N/A
Monticello	520,139	1,784,679	29%
Price	333,223	2,274,138	15%
Richfield	16,388	2,137,075	<1%
Salt Lake	0	3,242,007	N/A
St. George	152,762	623,961	24%
Vernal	235,882	1,690,495	14%
TOTAL	1,258,394	22,620,283	6%

When examining ACEC designations by field office, it is clear that there is considerable variation in both the total number of acres designated as ACECs and the percentage of BLM acreage designated as ACECs (Table 3). Overall, ACECs as a percentage of BLM land represent a very small fraction of the landscape in all four states (Table 3). Notably, Arizona has designated significantly more ACEC acreage than any of the other four states, and it has been in the vanguard of states to do so (Yuma – 1990 RMP designated 170,945 acres, Kingman – 1995 RMP designated 280,209 acres). Additionally, Utah field offices (with the conspicuous exception of Grand Staircase-Escalante National Monument) that manage the remarkable red rock canyon country of southern Utah have relatively high percentages of their landscape designated as ACECs. For these areas, the vast majority of the designations took place during the period 1991-1999 (Monticello - 1991 RMP designated 520,139 acres, Price - 1991 RMP designated 149,340 acres, Vernal 1994 RMP designated 125,400 acres and St. George 1999 RMP designated 119,947 acres). In stark contrast, areas with high concentrations of oil and gas wells, such as the Carlsbad Field Office in southeastern New Mexico (9,610 active wells, 22,032 total as of 2003), have very little acreage set aside for ACECs (Table 3). Within New Mexico and Colorado, the only large acreage designation (100,000 acres or greater) occurring through an RMP was the 1993 Las Cruces RMP's designation of 183,670 acres in New Mexico.

Frequency of Designation

The number of ACEC designations made each year has varied considerably since the passage of FLPMA. For example, the New Mexico and Utah BLM state offices were among the first states to embrace the ACEC mandate of FLPMA. By 1984, however, Colorado had designated as many ACECs as Utah and New Mexico combined, while Arizona did not designate a single ACEC until 1987, more than a decade after the passage of FLPMA.

ACEC Designations by State and Year

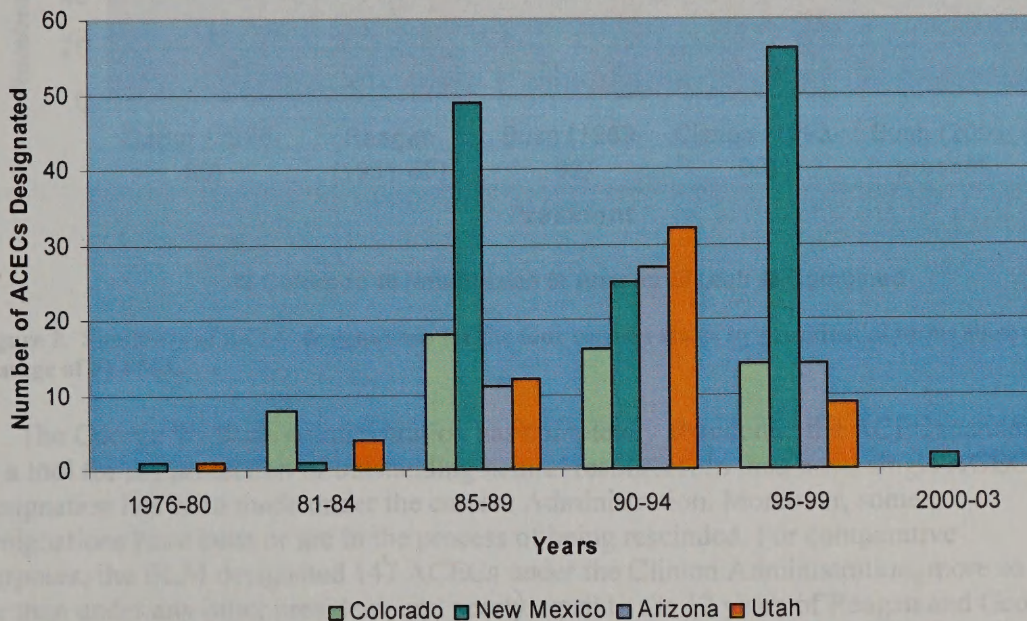


Figure 1. Summary of ACEC designations for the four corners states by year since the passage of FLPMA.

From the graph, it is evident that the majority of ACECs in the four corners states were designated during the period from 1985 to 1999. These designations parallel the development of programmatic land use plans during this period. Additionally, there is some evidence that ACEC designations have varied by presidential administration, although the patterns are more associated with individual presidents than along party lines.

Frequency of Designation

The number of ACEC designations made each year has varied considerably since the passage of PL 94-142. For example, the New Mexico and Utah BLM state offices were among the first states to endorse the ACEC mandate of PL 94-142. By 1984, however, Colorado had designated as many ACECs as Utah and New Mexico combined, while Arizona did not designate a single ACEC until 1987, more than a decade after the passage of PL 94-142.

ACEC Designations by State and Year



Figure 1. Summary of ACEC designations for the four corner states by year since the passage of PL 94-142.

From the graph, it is evident that the majority of ACECs in the four corner states were designated during the period from 1984 to 1992. These designations parallel the development of programs that are being developed during this period. Additionally, there is some evidence that ACEC designations have varied by presidential administration, although the patterns are more associated with individual presidents than along party lines.

ACEC Designation by Presidential Terms

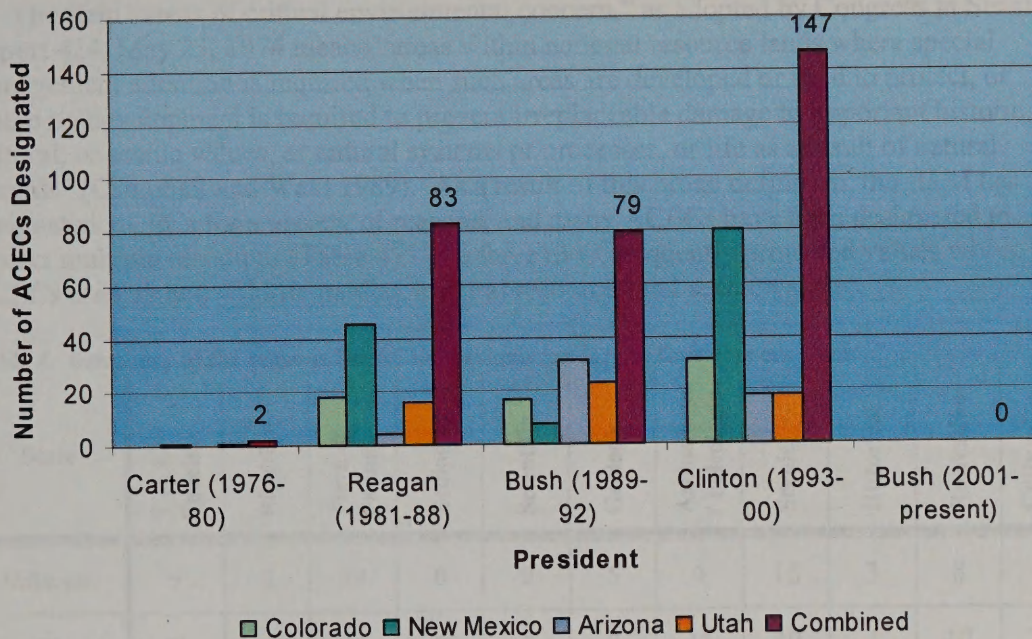
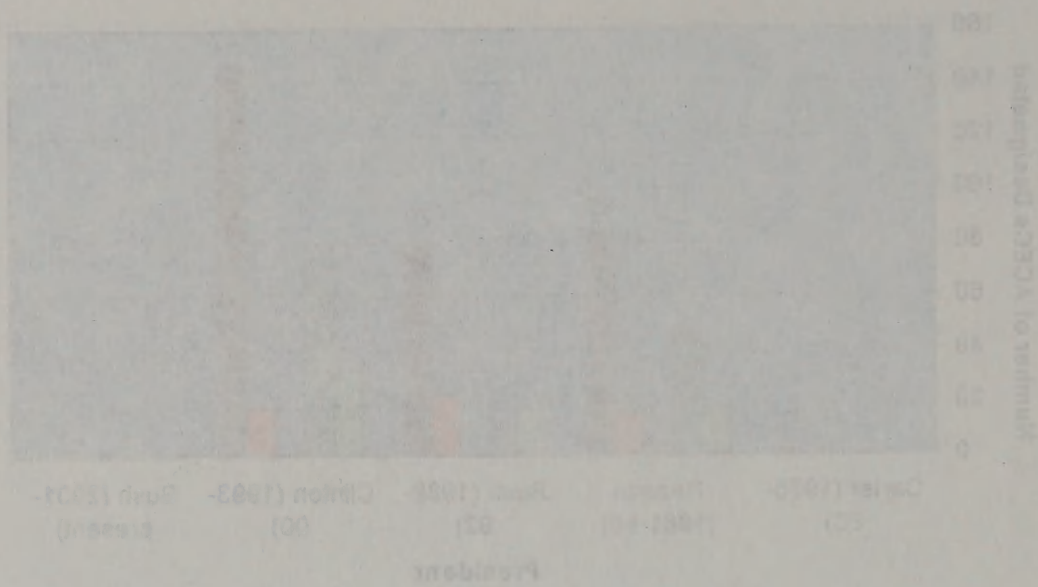


Figure 2. Summary of ACEC designations for the four corners states by presidential terms since the passage of FLPMA.

The George W. Bush Administration has completely abandoned the ACEC mandate as a tool for the protection of outstanding natural resources. In fact, not a single ACEC designation has been made under the current Administration. Moreover, some designations have been or are in the process of being rescinded. For comparative purposes, the BLM designated 147 ACECs under the Clinton Administration, more so by far than under any other president, and nearly equal to the 12 years of Reagan and George Bush Sr. combined.

When examined more broadly along political party lines, the BLM has designated 162 ACECs over 15 years under Republican administrations and designated 149 ACECs over 12 years under Democratic administrations. However, this may not be an accurate representation of the dynamics of ACEC designation, principally because the Carter Administration witnessed the very beginnings of FLPMA, a time when agency adoption of the new regulations might be expectedly slow.

ACEC Designation by Presidential Term



ACEC Designation by Presidential Term

Figure 1. Summary of ACEC designations by the first country state by presidential term and the number of ACEC.

The George W. Bush Administration has completely abandoned the ACEC mandate as a tool for the protection of conserving natural resources. In fact, not a single ACEC designation has been made under the current Administration. Moreover, some designations have been made in the process of being rescinded. For comparative purposes, the BLM designated 147 ACECs under the Clinton Administration more so by far than under any other president, and nearly equal to the 12 years of Reagan and George Bush Sr. combined.

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Types of Resources Protected

The term "areas of critical environmental concern," as adopted by Congress in Senate Report 424, May 23, 1974 means "areas within national resource lands where special management attention is required when such areas are developed or used to protect, or where no development is required to prevent irreplaceable damage to important historic, cultural, or scenic values, or natural systems or processes, or life as a result of natural hazards" (Campbell and Wald 1989). As a result of this broad definition, the BLM has designated ACECs for a variety of reasons, and many ACECs have been designated to protect multiple resources (Table 4). The three most frequently protected values within ACECs are fish and wildlife habitat, cultural resources and scenic values.

Table 4. Summary of the reasons for ACEC designation for the four corners states.

State	T & E Species	Riparian	Flora & Fauna	Ecological	Scientific	Geologic	Archeologic / Paleologic	Scenic	Historical	Recreation	Cultural
Colorado	9	2	28	0	0	5	7	15	3	8	6
New Mexico	31	12	41	9	2	8	13	39	1	17	79
Arizona	4	11	35	4	6	1	3	12	1	1	18
Utah	9	14	12	13	0	9	11	18	3	2	4

Effective Protection of Resources and Threats

The heart of the controversy surrounding the BLM's implementation of ACECs is whether the agency regularly provides "special management" considerations in order to protect the values for which the ACEC was designated. The answer to this question varies significantly among states, field offices and individual ACECs. Additionally, it is important to ask if the BLM has a rational decision making process for choosing ACECs to designate. Many of the existing ACEC designations appear to represent a myopic and piecemeal strategy for resource protection. In the end, there are a handful of very good examples of clear planning and successful implementation of ACECs, along with a variety of failures.

Sids Mountain ACEC: A Last Defense Against Wilderness Rollbacks



Photos courtesy BLM, <http://www.ut.blm.gov/wilderness/wrpt/wrptecids.html>

Designated in 1991 for the protection of scenic resource values, the Sids Mountain ACEC is located in the east-central region of Utah and is administered by the Price Field Office. The ACEC is located within the San Rafael Swell, a dramatic uplifted area featuring high mesas, deep canyons, domes and spires (Utah Wilderness Inventory 2003). The area also boasts a spectacular but little known feature called "The Little Grand Canyon," where the San Rafael River cuts through the northern portion of the ACEC. The Sids Mountain region is uniquely valuable because it is contiguous with ten other ACECs, including the San Rafael Reef, I-70 Scenic, Muddy Creek and the San Rafael Canyon complex of ACECs, totaling over 284,000 acres. Management directives for Sids Mountain include a closure to mineral materials sales, avoidance of new rights-of-way, closure to commercial woodland product harvesting, an exclusion from land treatments and limiting ORV use to designated roads and trails. The remoteness, inaccessibility and ruggedness of the Sids Mountain ACEC and adjacent lands have made them excellent candidate areas for wilderness designation. The Utah Wilderness Inventory lists 23,000 acres of the 62,000 acre ACEC as having Wilderness characteristics (Utah Wilderness Inventory 2003).

Beginning with the first ACEC designations, there has been a tendency within the BLM to designate ACECs to be contiguous with areas previously provided some degree of protection under other management programs such as Wilderness Study Areas (WSAs), Wilderness Areas and National Conservation Areas. There has been speculation about the impetus for this concurrent designation of areas, and it is likely that in many cases the agency's motivation was simply to address the ACEC mandate while simultaneously avoiding controversial designations or an increase in the total BLM acreage subject to land use restrictions (Cambell and Wald 1989). If this is indeed the agency's motivation for the concurrent designations, the strategy may be ready to backfire on them.

The current Bush administration's rollback of protections for WSAs and Wilderness consideration could signal the beginning of a larger onslaught to dismantle Wilderness protection for vast areas of BLM land that have the potential for resource development. As part of a backdoor settlement with the State of Utah, the Department of the Interior has disowned the 1999 comprehensive state-wide BLM Wilderness inventory and dismantled WSA protection for a host of post-1993 designated WSAs (Instruction Memorandum 2003-195, 2003). The Wilderness inventory listed over 2,600,000 acres of Utah BLM lands as meriting Wilderness designation, a consideration which is now moot under the settlement (Utah Wilderness Inventory, 2003). Additionally, 17 WSAs in Utah totaling 29,624 acres lost WSA protection, including 440 acres of the Sids Mountain ACEC (Instruction Memorandum 2003-195, 2003). Today, management directives for the Sids Mountain ACEC are the deterrent of oil and gas development, unregulated ORV use and other destructive land uses on those 440 acres that were formerly a Wilderness Study Area. The overlap of WSAs and ACECs in Utah alone total over 534,000 acres. If rollbacks in WSA and Wilderness protection continue, ACEC designations could play an increasingly important role in preventing the destruction of these wild places.

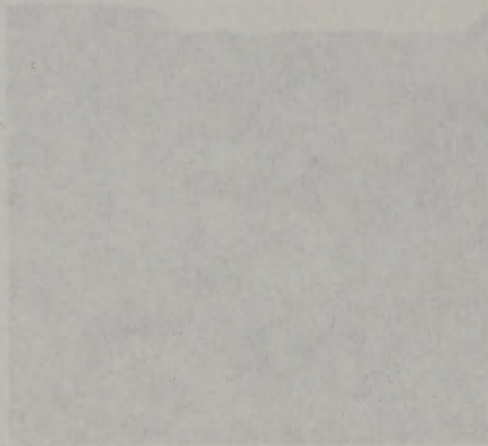


Figure 1. A photograph of the water treatment plant.

The purpose of this report is to provide a detailed description of the water treatment plant, which is located in the city of Nashville, Tennessee. The plant is owned and operated by the American Water Works Association (AWWA). The plant is a large, rectangular, light-colored structure, which is situated on a hillside. The plant is surrounded by a fence, and there are several trees and bushes in the background. The plant is a modern facility, and it is equipped with a variety of equipment, including pumps, filters, and storage tanks. The plant is designed to treat water from the surrounding area, and it is able to produce up to 100 million gallons of water per day. The plant is a very important part of the city's water supply system, and it is a source of pride for the city of Nashville.

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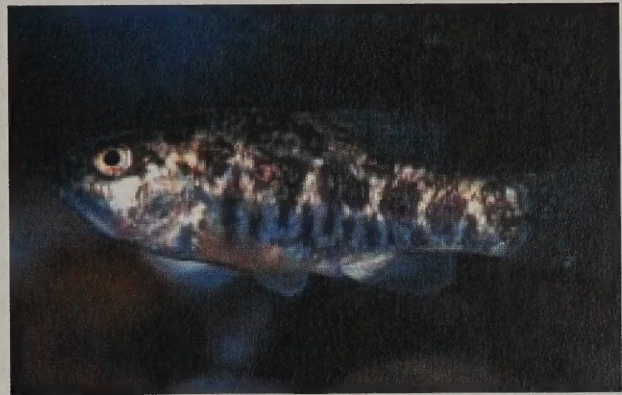
ACEC designation and management are vulnerable to political interference by extractive industries, a fact that is supported by the patterns of ACEC designation over time. For example, ACECs are vulnerable to the pressure of oil and gas developers, particularly given current politics in which domestic energy development is being equated with national security. Our profile of Simon Canyon ACEC in New Mexico (p.41) is a prime example. Designated for natural resource protection in 1980, it was the very first ACEC to be designated in the four corners states. Today, the landscape of Simon Canyon is littered with miles of road networks and oil and gas wells.

The size of ACECs also relate to their effectiveness, or lack thereof, as a conservation tool. There is no mandatory minimum size for ACECs, but logic dictates that they should be of a minimum size necessary to protect the resources for which they were designated. In this regard there has been some improvement over time, as recent ACEC designations in some states, particularly Arizona and Utah, have encompassed larger areas. However, Colorado and New Mexico have continued to designate small ACECs, many of them only a few hundred acres or less in size. These small ACECs become islands in a sea of degraded landscape, and as more and more of the surrounding habitat is destroyed, their ability to maintain viable populations of key species is reduced drastically. It is far more likely that a smaller number of larger ACECs are more valuable in conserving sensitive environmental values than are a greater number of small and isolated ones (Diamond and May 1976).

The attention the BLM gives to managing ACECs once they are designated is also critical to their usefulness as a conservation tool. Simply designating an ACEC and then allowing continued use or abuse of resources undermines the effectiveness of the ACEC program. For example, the Utah BLM's failure to implement its management directives for the Warner Ridge / Ft. Pierce ACEC has resulted in continuous illegal ORV use that has severely degraded the valuable riparian habitat intended to be protected by the ACEC. This illegal ORV activity has gone on so long that the agency has in effect condoned it, and has now begun the construction of an officially designated ORV trail through the ACEC to 'accommodate public use' (St. George Field Office, Utah BLM, 2003). A central problem in dealing with situations like the Warner Ridge / Ft. Pierce ACEC has been the agency's reluctance to implement Site Specific Management Plans, instead relying on brief and general directives within a broader RMP to dictate ACEC management policy. Absent comprehensive and detailed planning processes with regular review and update, ACECs will never live up to their potential as conservation areas. Such detailed planning is likely to only be accomplished with the preparation of scientifically rigorous site specific management plans, a facet of ACEC designation that the BLM has been largely unwilling to more fully develop.

When it comes to natural resource protection on ACECs, much of the conflict over management prescriptions comes from the BLM's historical agenda to manage public lands for extractive industries even when it conflicts with the protection of cultural and ecological values. It is chiefly in the regulation of land uses by humans that the BLM succeeds, or fails, in its implementation of the ACEC conservation tool. The principal land uses that threaten ACECs today include oil and gas development and mining, cattle grazing, private inholdings, ORV use and road development. Too often the agency permits, or fails to enforce restrictions, of land uses within ACECs that are not compatible with the ACEC values in need of protection.

The Overflow Wetlands ACEC: Detailed Planning Can Produce Results



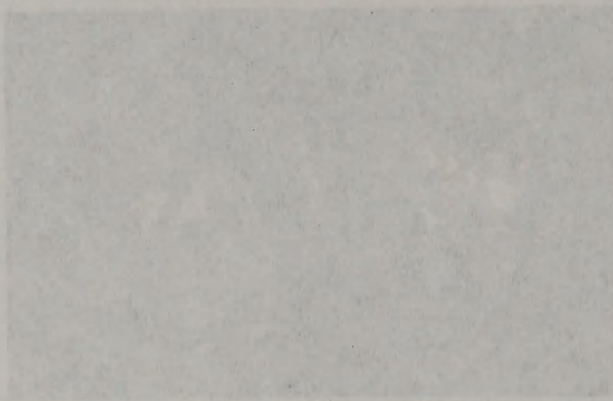
Photos courtesy of Jess Alford

The Overflow Wetlands ACEC is a 7,000-acre ACEC designated in 1997 and administered by the Roswell Field Office of the New Mexico BLM. This ACEC contains approximately 5 miles of the Pecos River and a wide floodplain on both banks, as well as a unique wetlands area that trends from north to south for 3.5 miles within the ACEC before entering the Pecos River. The wetlands drain into the Pecos River at four separate locations, three of which are within the ACEC and one of which is on adjacent state land. Additionally, the ACEC features unique karst (sinkhole) geology and is home to the Federal Threatened Pecos (Puzzle) Sunflower (above, left), and the BLM Sensitive Pecos pupfish (above, right).

The Overflow Wetlands ACEC is one of the few that enjoy protection via a site-specific management plan. The plan was drafted with input from the public and includes an overarching vision statement that sets forth the agency's desire to restore the wetlands, river and floodplain within a 20-year time frame (Roswell Field Office, New Mexico BLM, 2003). The plan calls for the restoration of a properly functioning river with dominant native vegetation and the enhancement of native plant, animal, bird and fish habitat. The original management directives included a No Surface Occupancy (NSO) stipulation for new oil and gas leases on 700 acres of wetlands and 170 acres of a wetland buffer zone and excluded new rights-of-way on 3,000 additional acres. The directives also canceled the grazing lease for one of the five allotments within the ACEC and closed 1,000 acres of the ACEC to ORV use.

Since its designation, the BLM has undertaken restoration projects within the ACEC that have included the construction of fish barriers to prevent hybridization of the Pecos Pupfish with the sheepshead minnow, the removal and control of non-native vegetation and a recommendation to the New Mexico Department of Game and Fish to designate the ACEC as a "No Minnow Seining Area" to prevent the taking of the Pecos Pupfish (Roswell Field Office, New Mexico BLM, 2003). The agency has also acquired a 200-acre parcel and has allocated the water rights for two wells within the parcel for wildlife use. The management plan significantly addresses the need to preserve the natural character of the wetlands and riparian areas, the necessity for long-term monitoring of habitat and wildlife, the participation of the agency in the Pecos Pupfish Conservation Agreement, the need to control the invasion of non-native riparian plants and the need to acquire private inholdings (Roswell Field Office, New Mexico BLM, 2003).

The BLM has recently proposed additional conservation actions that will benefit the resource values of the ACEC. The agency has proposed the retirement of additional public lands within another of the four remaining grazing allotments on the ACEC and has initiated negotiation with the State Land Office to re-align state grazing pastures to provide for an increased wetland buffer from livestock grazing (Roswell Field Office, New Mexico BLM, 2003). The BLM has also proposed the implementation of mechanical and herbicidal (hand applied) removal of non-native vegetation, and the use of prescribed burns to promote natural vegetation communities and control invasive weeds and non-native saltcedar. Additional proposed actions that will benefit the ACEC's resource values include limiting the use of ORVs to designated roads and trails and designating an area that contains a colony of black-tailed prairie dogs as closed to hunting (Roswell Field Office, New Mexico BLM, 2003).



The American Planning Association (APA) is a national organization of planners and planning professionals. It was founded in 1917 and is the largest and oldest of its kind in the United States. The APA's primary purpose is to advance the science and art of planning and to promote the development of the planning profession. It does this through a variety of activities, including publishing, research, education, and advocacy. The APA's journal, *Journal of the American Planning Association*, is one of the most influential in the field. The APA also publishes a variety of other materials, including books, pamphlets, and reports. In addition, the APA sponsors a number of educational programs, including a biennial conference and a variety of workshops and seminars. The APA is also active in advocacy, working to influence public policy and to promote the interests of the planning profession. The APA's headquarters are located in Washington, D.C., and it has a number of regional offices throughout the United States.

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Critical Ecological Values and Monitoring

Critical ecological values and sensitive species in the arid west are often associated with riparian areas or unique, geographically limited ecological communities. The BLM, as stewards of hundreds of millions of acres of vast arid landscape, has a unique opportunity to protect desert ecosystems and the riparian corridors that give life to so many species. How effective the BLM is at targeting and protecting areas with especially valuable habitat characteristics will ultimately determine how successful the agency is in fulfilling the conservation mandate of FLPMA and the promise of the NLCS.

In order to assess the degree to which ACEC designation has effectively targeted critical habitat areas and protected sensitive species this report reviews the distribution of some key factors, water quality and keystone / indicator species, with respect to ACECs. We have looked both at the distribution of these resources on the landscape and how well the resources have been monitored by the agency.

Riparian and Aquatic Values

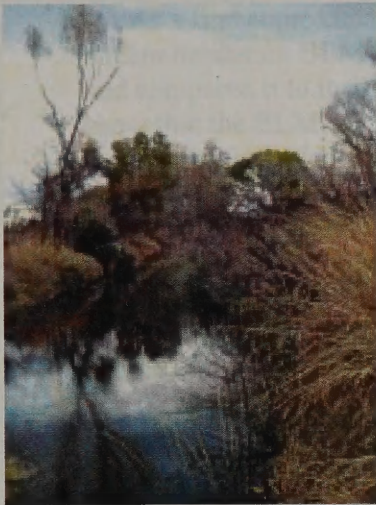
Riparian habitat and streams are a key component of southwestern ecosystems. Although riparian communities make up only about 1% of the total landscape, they can provide habitat for up to 80% of all arid land species (Fleischner 1994). Perennial and ephemeral streams and surrounding habitat provide cover and habitat for many state and federally listed species, including the southwestern willow flycatcher, Bald eagle, Pecos bluntnose shiner and Sonoran desert tortoise. The BLM, more so than any other federal agency, has a unique opportunity to protect riparian resources in the Southwest. BLM lands encompass many miles of riparian and stream habitat, ranging from the mighty flows of the Colorado and Green Rivers to ephemeral washes. Unfortunately, the BLM utilized the ACEC tool to protect riparian stream corridors in only a small number of instances (Table 5).

While the BLM has protected some important riparian habitat through the designation of ACECs, the agency has failed to plan strategically to make the most of its conservation potential as the stewards of vast tracts of riparian habitat. A more effective approach to riparian protection will require a rigorous and careful programmatic planning process, more rigorous monitoring and inventory practices, and closer integration with other agencies such as state water quality departments.

Table 5. Stream miles administered by the BLM and stream miles with water quality violations.

State	Total BLM Stream Miles	ACEC Stream Miles	Percentage of Streams Within ACECs	ACEC 303d Listed Stream Miles	Percentage of ACEC Streams w/ 303d Listing	303d Stream Miles in State
Colorado	15,888	191	1.2%	.4	< 1%	1,422
New Mexico	19,174	930	4.9%	172	18%	7,202
Arizona	28,249	2,002	7%	33	2%	1,341
Utah	42,415	2,422	5.7%	181	7%	2,521

Ghost ACEC: The San Rafael Research Natural Area (RNA)

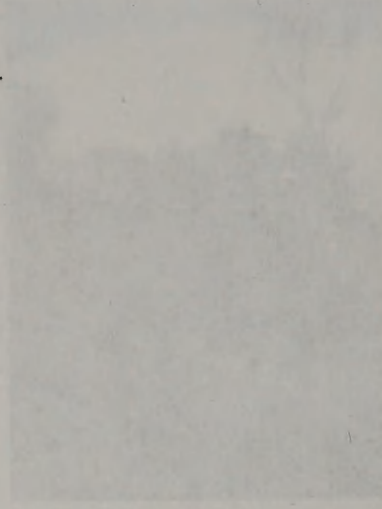
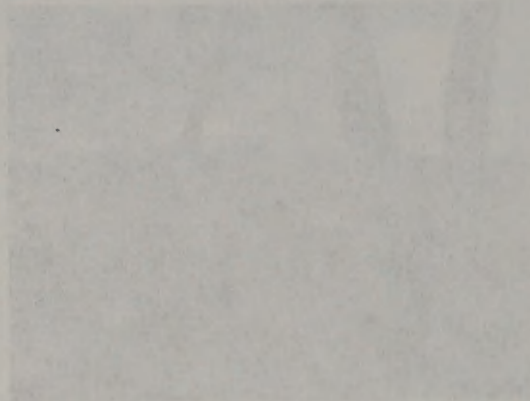
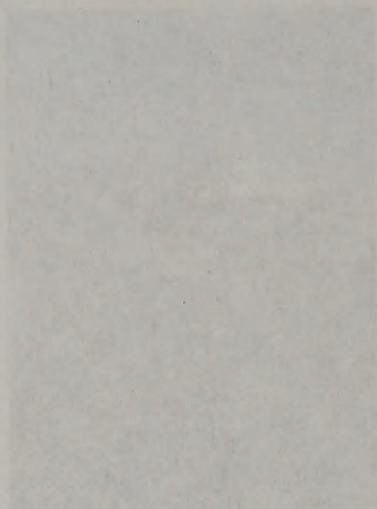


From left to right, 1) the San Pedro River and its riparian zone, an exemplary representation of healthy cottonwood willow vegetation class 2) charred trees are evidence of the natural fire regime that has maintained the lush grassland community of this ACEC and, 3) close-up view of the waist high alkali and giant sacaton grasses that make this area so unique.

The San Rafael ACEC is a 370-acre area with a dual designation as both an ACEC and a RNA located within the Safford Field Office of the Arizona BLM. The ACEC was designated in 1992 to protect a unique grassland community and exemplary riparian values, and to provide for scientific research. The ACEC contains a high quality cottonwood willow riparian vegetation community and a remnant alkali and giant sacaton grassland community. The grassland has been subject to periodic, natural low intensity fires that have maintained the historic species composition.

Our initial efforts to ascertain information on, and the location of, this ACEC revealed that it has been largely forgotten by the resource managers in the Safford and Tucson District Offices. We placed a call to the Environmental Officer at the Safford Field Office who is charged with administering ACECs, but she had no knowledge of the San Rafael ACEC. We then decided that, because of the ACEC's proximity to the Tucson Resource Area, we would contact the Tucson Field Office to determine if it administered the ACEC. No one at that office was aware of the San Rafael ACEC either. We were finally able to track down one BLM official who has taken a great interest in the San Rafael ACEC and two others, the Saint David Cienega and San Pedro River ACECs, all of which are contained within the San Pedro Riparian National Conservation Area. That individual was Jack Whitstone, a wildlife biologist who works in a small BLM office that is charged with administering the San Pedro Riparian National Conservation Area. Jack was able to provide us with information about the rare plant community present at the site and an account of the natural fire history that makes the area so unique.

As part of the San Pedro Riparian National Conservation Area, the San Rafael ACEC has been protected from many of the threats that have severely damaged similar riparian and grassland areas in the Southwest. Management directives for the ACEC include encouraging avoidance by recreation users, prohibition of overnight camping and campfires, prohibition of vehicular access (ORV and otherwise) and closure to development and new rights-of-way. Additionally, the ACEC has not been subject to livestock grazing, as there are no BLM grazing allotments in the area. The San Rafael ACEC has remained essentially wild and unmanaged by the BLM, a situation that has allowed for it to remain in an essentially undisturbed state. The San Rafael ACEC is an example of an area that, at least in this case, may indeed be better off forgotten.



The San Rafael Reserve Natural Area (RNS) is a 10,000-acre area in the San Rafael Mountains, located in the northern part of the San Francisco Bay Area. It is a mix of forested and open areas, and is a popular destination for hikers and nature lovers.

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Number of Miles, Length of River Reaches

As a first approximation at how well the BLM has used the ACEC tool to protect stream habitat on BLM lands, we analyzed the total number of stream miles on BLM land and compared it to the total number of stream miles within ACECs (Table 5). Our results show that the BLM has not systematically utilized the ACEC tool to catalog and protect the critical ecological values of publicly owned streams in the Southwest. None of the states protected a significant amount of stream miles within ACECs when compared to the total stream miles they administer (Table 5). Overall, Arizona designated the largest percentage of stream miles at 7%. More discouraging still is the fact that the Colorado BLM protected only 1.2% of its total stream mileage within ACECs, while the New Mexico and Utah BLM both protected 5-6% of their total stream miles within ACECs (Table 5).

Overall, the numbers from Arizona and Utah are more impressive than those from Colorado and New Mexico when we consider the total number of stream miles under BLM jurisdiction. In absolute terms, both Arizona and Utah separately have designated approximately twice the number of stream miles within ACECs than have Colorado and New Mexico combined (Table 5). Additionally, since the average size of ACECs within Arizona and Utah is far greater than in Colorado and New Mexico, the stream miles within their ACECs are likely to be better protected (Table 2). This is because streams and the habitat they support are particularly vulnerable to the conditions upstream. Larger ACECs will, on average, protect longer reaches of river and ensure more agency control over uses that affect water quality and riparian habitat.

Water Quality

In accordance with the Clean Water Act, state water quality departments maintain a listing of polluted water bodies or waterways in violation of designated water quality standards, known as the 303d list. An analysis of the number of miles of 303d listed waters within ACECs is revealing. While Colorado and Arizona have only 1% and 2% of the total ACEC stream miles listed as violating water quality standards, fully 18% of all the ACEC streams in New Mexico and 7% of those in Utah are currently violating federal water quality standards (Table 5). This evidence suggests that the New Mexico and Utah BLM could be doing a better job at regulating activities within or around ACECs that are in conflict with the maintenance and improvement of water quality and riparian habitat. It is significant that the majority of ACECs in New Mexico and Utah with large percentages of their waters in violation of standards are either of small size or tend to follow river corridors with very little "buffer" uplands around the corridor. It is likely that very small ACECs or those that only protect river corridors but do not protect the surrounding uplands may be insufficient for water quality protection purposes (Table 6).

Table 6. Summary of stream miles and 303d listed stream miles for ACECs with water quality violations.

State / ACEC	Stream Miles	303d Listed Miles
COLORADO		
Brown Canyon	16.9	0.05
Mosquito Pass	3.0	0.3
NEW MEXICO		
Bald Eagle	55.4	.8
Bear Creek	1.1	1.1
Copper Hill	9.0	6.8
Fort Stanton	10.8	5.8
Gila Lower Box	8.5	8.0
Gila Middle Box	2.3	2.3
La Cienega	8.4	7.7
Lower Gorge	16.38	16.38
Ojo Caliente / Black Mesa	44.9	20.7
Pecos River / Canyons Complex	22.3	4.5
San Antonio Gorge	7.6	7.4
ARIZONA		
Burro Creek	108.5	18.3
Perry Mesa	23.0	0.1
San Pedro River	5.2	1.5
San Rafael	3.0	2.1
St. David Cienega	0.4	0.4
Virgin River	108	5.8
UTAH		
Santa Clara-Gunlock	7.0	0.9
Nine Mile	196.9	55.6
Gilbert Bad Lands	3.7	.4
Dry Lake	22.2	2.1
I-70 Scenic	79.8	7.3
Santa Clara-Land Hill	3.8	2.0
Muddy Creek	104.7	27.1
San Rafael Canyon Lower	60.9	8.8
San Rafael Canyon Middle	67.8	13.0
San Rafael Canyon Upper	29.3	12.4
Lower Virgin River	7.3	3.8
Shay	5.8	2.7
San Rafael Reef South	41.0	2.0
Lower Green River	127.1	0.7
Lower Virgin River	2.3	0.8
Pariette Wetlands	60.8	17.9

At issue are the land uses taking place both within and around ACECs. Livestock grazing is a ubiquitous activity on BLM lands and occurs within nearly every ACEC. Regulation of grazing is not likely to be sufficient to protect riparian habitat and water quality within ACECs. Additionally, ORV use is particularly widespread in southeastern Utah and an increasingly popular land use throughout the West (St. George Field Office, Utah BLM, 2003). ORV use is regulated to some extent with the designation of trail systems and special recreation areas, but anecdotal evidence that we have gathered suggests that unregulated and often illegal ORV activity is rampant on western public lands (for example, see Warner Ridge / Ft. Pierce ACEC profile pp. 59-60). Both grazing and ORV use have well documented impacts on water quality (CEQ 1979, Brown 1994,

Fleischner 1994). Additional activities such as oil and gas drilling and mining have the potential to degrade water quality as well (Soule 1992, NM BLM 2003).

The challenge of regulating activities that impact water quality within and around ACECs is twofold. First, the BLM must incorporate meaningful and enforceable management directives, preferably within detailed site-specific plans, into ACEC designations. This will help ensure that resource objectives are not being undermined from a lack of management. Second, the BLM must take into careful consideration the surrounding land uses when it designates new ACECs. Surrounding land uses must either be managed in accordance with the ACEC resource protection agenda or mitigation measures must be applied to prevent surrounding land uses from compromising resource protection. Where surrounding lands are under BLM jurisdiction, land managers should integrate surrounding land uses with the goals of ACEC resource protection. A more difficult scenario presents itself when land managers must work with surrounding private landowners to ensure the protection of ACEC resources.

Another avenue for the BLM to improve water quality conditions within and around ACECs is to work more closely with state water quality departments. These departments are responsible for inventorying and monitoring water quality throughout the state as well as publishing the 303d lists. They maintain detailed information about the types of water quality violations that are occurring and, in some cases, the cause of the violations. This type of information would be of particular value to land managers attempting to bring land uses into alignment with the conservation values of ACECs.

The Santa Clara-Gunlock ACEC Water Diversion Project



The Santa Clara-Gunlock ACEC is a 1,998-acre area located in the southwest corner of Utah and administered by the Saint George Field Office of the BLM. The ACEC was designated in 1999 for the protection of riparian and archeological resources. The ACEC contains approximately 4 miles of riparian habitat along the Santa Clara River. The Santa Clara River is home to the Virgin spinedace, a candidate species for ESA listing that is endemic to the Virgin River Basin, as well as the desert sucker, a state species of concern and the speckled dace. The Virgin Spinedace Conservation Agreement and Strategy, produced by the Utah Division of Wildlife Resources and the U.S. Fish and Wildlife Service in 1995 lists water development projects among the reasons for the fish's decline (Lentsch et al. 1995). As of 1995, biologists had documented a 37-40% reduction on the known range of the Virgin spinedace, from approximately 140 miles to 52 miles (Lentsch et al. 1995). The riparian area of the Santa Clara-Gunlock ACEC also includes habitat for the federally listed southwestern willow flycatcher.

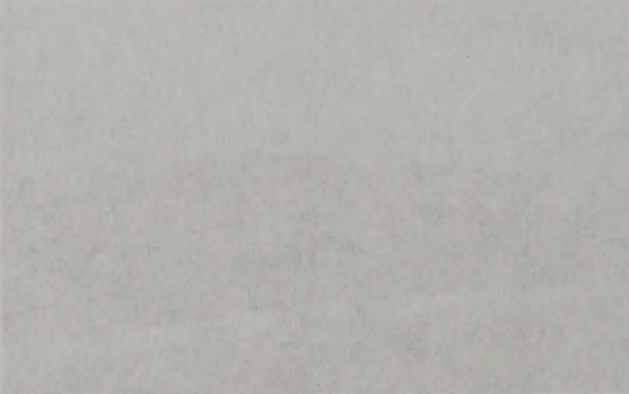
In May of 2003, the BLM approved an EA and Finding of No Significant Impact authorizing the construction of the Santa Clara Pipeline Project. When completed, the pipeline will be 8.5 miles long, beginning at the Gunlock Reservoir dam above the ACEC and terminating at the Ivins Reservoir (St. George Field Office, Utah BLM 2002). A total of 3 miles of the pipeline will be buried within the Santa Clara-Gunlock ACEC (St. George Field Office, Utah BLM 2002). Construction of the pipeline is to

Plancher 1994). Additional activities such as oil and gas drilling and mining have the potential to degrade water quality as well (ISMA 1991, MBLM 2000).

The challenge of regulating activities that impact water quality within and around ACEC's is to ensure that the BLM must respond in a meaningful and enforceable manner. The BLM must develop a plan that is specific to the ACEC and its resources. This will help ensure that resource objectives are not being undermined from a lack of management. However, the BLM must take into careful consideration the surrounding land area when it manages the ACEC. Surrounding land uses must either be managed in accordance with the ACEC resource protection agenda or mitigation measures must be applied to protect surrounding land area from compromising resource protection. Where surrounding lands are under BLM jurisdiction, land managers should integrate surrounding land use with the goals of ACEC resource protection. A more difficult scenario presents itself when land managers must work with surrounding private landowners to ensure the protection of ACEC resources.

Another avenue for the BLM to improve water quality conditions within and around ACEC's is to work more closely with state water quality agencies. These agencies are responsible for investigating and enforcing water quality throughout the state as well as publishing the 303d list. They regularly detailed information about the types of water quality violations that are occurring and in some cases, the cause of the violation. This type of information would be of particular value to land managers attempting to bring land use into alignment with the resource values of ACEC's.

The State of Texas and the ACEC Water Quality Project



The State of Texas and the ACEC Water Quality Project. The ACEC Water Quality Project is a collaborative effort between the BLM and the Texas Department of Transportation (TxDOT). The project is designed to improve water quality in the ACEC by implementing various measures, including the installation of sediment traps, the construction of vegetative buffers, and the implementation of best management practices (BMPs). The project is currently in the planning phase, and the BLM is working with TxDOT to develop a detailed implementation plan. The project is expected to be completed by the end of 2001. The BLM is also working with the Texas Department of Agriculture (TDA) to develop a water quality monitoring program for the ACEC. The program will involve the installation of water quality monitoring stations and the collection of water quality data on a regular basis. The BLM is also working with the Texas Department of Environmental Protection (TDEP) to develop a water quality assessment for the ACEC. The assessment will involve the collection of water quality data and the analysis of the data to determine the current water quality conditions in the ACEC. The BLM is also working with the Texas Department of Health Services (TDHS) to develop a water quality risk assessment for the ACEC. The assessment will involve the identification of potential water quality risks to human health and the development of strategies to mitigate these risks. The BLM is also working with the Texas Department of Insurance (TDI) to develop a water quality insurance program for the ACEC. The program will provide financial assistance to landowners who are implementing water quality improvement measures on their property. The BLM is also working with the Texas Department of Criminal Justice (TDCJ) to develop a water quality program for the ACEC. The program will involve the installation of water quality monitoring stations and the collection of water quality data on a regular basis. The BLM is also working with the Texas Department of Transportation (TxDOT) to develop a water quality program for the ACEC. The program will involve the installation of water quality monitoring stations and the collection of water quality data on a regular basis. The BLM is also working with the Texas Department of Agriculture (TDA) to develop a water quality program for the ACEC. The program will involve the installation of water quality monitoring stations and the collection of water quality data on a regular basis. The BLM is also working with the Texas Department of Environmental Protection (TDEP) to develop a water quality program for the ACEC. The program will involve the installation of water quality monitoring stations and the collection of water quality data on a regular basis. The BLM is also working with the Texas Department of Health Services (TDHS) to develop a water quality program for the ACEC. The program will involve the installation of water quality monitoring stations and the collection of water quality data on a regular basis. The BLM is also working with the Texas Department of Insurance (TDI) to develop a water quality program for the ACEC. The program will provide financial assistance to landowners who are implementing water quality improvement measures on their property. The BLM is also working with the Texas Department of Criminal Justice (TDCJ) to develop a water quality program for the ACEC. The program will involve the installation of water quality monitoring stations and the collection of water quality data on a regular basis.

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take place entirely within the shoulder of the Gunlock Highway. The project is being conducted under the terms of the Paiute Indian Tribe of Utah Water Rights Settlement Act (Settlement Act). The stated goals of the project are to provide additional water to settle water rights claims with the Shivwits Band of the Paiute Indian Tribe of Utah and to ensure 3 cubic feet / second (cfs) of instream flow in the Santa Clara River to further the conservation strategies for the Virgin spinedace (St. George Field Office, Utah BLM 2002).

Despite these laudable goals, there are some concerns over the unforeseen consequences of the project. The EA states that the riparian zone within the ACEC may experience a 'minor' reduction in size and/or species composition (St. George Field Office, Utah BLM 2002). Any change in the size of the riparian zone could impact the habitat of the southwestern willow flycatcher and is a cause for concern. As a result of the project, there will also be considerably less instream flow during the irrigation season, but instream flow will be guaranteed year round at a minimum of 3 cfs, a situation the EA says will mimic the natural hydrologic character of the Santa Clara River (St. George Field Office, Utah BLM 2002).

The EA states that the BLM will continue to monitor the habitat of the southwestern willow flycatcher and the Virgin spinedace, and that if any negative impacts to the species are detected, the agency will use adaptive management to mitigate those impacts by modifying the volume and/or timing of instream flow. The Settlement Act provides funding for the agency to acquire and release additional water for instream flow into the Santa Clara River for this purpose (St. George Field Office, Utah BLM 2002). The success or failure of this project as it relates to the conservation of sensitive species and the resource values of the Santa Clara-Gunlock ACEC will ultimately be determined by the priority the BLM gives to monitoring the riparian area and utilizing adaptive management to ensure that additional water resources are acquired, if necessary, to mitigate any negative project effects.

Assessing Riparian Function

Since the early 1990's the BLM has relied on one increasingly well known methodology to assess the health and functioning of riparian communities, the Proper Functioning Condition (PFC). However, PFC analysis is a woefully inadequate tool for conducting systematic, repeatable monitoring, and its implementation suffers from serious drawbacks (Stevens et al. 2001). The analysis is intended for use by those with only lay knowledge of riparian ecology or a few hours of instruction on the basics of hydrology and ecology. As a result, it is correspondingly vague and subjective. The implementation and frequency of PFC monitoring is independently determined, and as a result, the frequency of most PFC analyses are sporadic in time and space. PFC analysis may be used to inform management prescriptions, in the process of developing Environmental Assessments or other documents required by law or to inform the decisions reached in Resource Management Plans or site specific management plans.

Critiquing the Proper Functioning Condition Assessment Tool

The PFC assessment lacks standardization, repeatability and scientific rigor, and because of this, fails to be an adequate methodology to assess riparian condition. PFC forms can vary considerably in their content both within and among states. Furthermore, PFC forms are often only partially filled out by surveyors. Important information, such as location coordinates, is often left out. The typical PFC form includes questions such as, "Riparian Vegetation Vigor (circle): (Good) (Fair) (Poor)" or "Threats, Erosion: 0,1,2,3". Such a subjective and surveyor-dependent questionnaire is of little use in determining an objective and scientifically repeatable evaluation of riparian habitat conditions. As a monitoring tool the PFC falls far short of meeting the standards of the scientific method. To truly evaluate riparian conditions, particularly within ACECs designed to protect those resources, the BLM needs to employ a more rigorous application of accepted scientific protocols for ecological monitoring.

Notwithstanding its flaws, the PFC analysis is the only comprehensive and systematic tool the BLM uses to assess the condition of riparian communities. Therefore, we analyzed all available data for PFC analysis conducted within Colorado, New Mexico, Arizona and Utah from 1990 to the present to determine how useful this tool has been in monitoring existing ACECs and identifying areas of special concern that merit ACEC protection. One additional flaw in the PFC analyses that we examined was that the methodology and documentation rigor varied significantly, particularly in the documentation of the location where the PFC analysis took place. Without detailed location information, preferably with coordinates and photographic documentation, it is nearly impossible for anyone not involved in the original assessment to independently verify or repeat the analysis at a later time. Many of the PFC analyses we examined did not contain specific enough information to allow us to identify the location of the analysis with any confidence, and these analyses are not discussed here.

Riparian Monitoring Efforts

For the period 1990 to the present, available data indicated that the BLM conducted nearly 1,000 PFC analyses over the last decade in the four states we reviewed. The agency conducted 32 (4 mapable) PFC analyses in Colorado, 367 (342 mapable) in New Mexico, 99 (28 mapable) in Arizona and 583 (265 mapable) in Utah (Table 7). These numbers indicate that the Arizona and Colorado BLM do not use the PFC tool to the degree that the New Mexico and Utah BLM do. However, when looking at the number of PFC analyses that were conducted within ACECs, it is clear that none of the four states have done an adequate job monitoring riparian areas within ACECs over the past 13 years (Table 7).

Table 7. Mapable PFC Analysis within ACECs, 1990-present.

State / ACEC	Waterbody Name	Stream Miles	Riparian Acres	Functional Condition	Trend	Year
COLORADO						
No Data						
NEW MEXICO						
Ojo Caliente / Black Mesa	Ojo Caliente	1.25	160	Functional At Risk	Upward	1994
	Ojo Caliente	0.42	108	Functional At Risk	Upward	1996
Copper Hill	Canada de Agua	0.2	0.5	Functional At Risk	Not Apparent	1994
	Canada Ojo Sarca	1.5	9	Not Functional	Not Apparent	1994
	Tierra Amarilla	0.3	3	Functional At Risk	Upward	1997
Lower Gorge	Canada de Agua	0.2	0.5	Functional At Risk	Not Apparent	1994
Elk Springs	Rio Puerco	4.19	44	Not Functional	Downward	1993
Ojito	Rio Salado	0.94	93	Not Functional	Downward	1993
North Pecos River	Pecos River	1.9	1380	Functional At Risk	Upward	1993
Sacramento Escarpment	Escarpment Spring	0.1	1	Proper Functioning Condition	Missing	1993
Dark Canyon	Stetson Seep	0.01	0.25	Functional At Risk	Not Apparent	1996
Blue Spring	Blue Spring	2.5	6.06	Not Determined	Missing	Unknown
Lonesome Ridge	Big Canyon Seep	0.01	0.25	Functional At Risk	Not Apparent	1993
ARIZONA						
Burro Creek	Burro Creek	2.6		Functional At Risk	Upward	2000
	Francis Creek	1.25		Proper Functioning Condition		2001
	Burro Creek	0.5		Functional At Risk	Upward	2001
	Burro Creek	0.4		Proper Functioning Condition		2001
Table Mountain	Virgus Canyon	1.5		Functional At Risk	Upward	2001
	Lower Sycamore Canyon	1		Proper Functioning Condition		2001
	Saddle Canyon Spring	0.25		Proper Functioning Condition		2001
UTAH						
Brown's Park	Guymon Seep Complex		1	Functional At Risk	Not Apparent	2001

The data presented in Table 7 indicate that each state falls short of conducting regular, comprehensive monitoring for ACECs, particularly those with directives related to riparian management. For example, the Colorado BLM did not conduct a single mapable PFC analysis within any ACECs let alone within the 5 ACECs it designated primarily for the protection of riparian communities. Although the New Mexico BLM did conduct the most PFC assessments within ACECs, it has failed to conduct any assessments within ACECs after 1996, and conducted only one PFC assessment within the nine ACECs designated with riparian directives (Table 8). Trends for Arizona and Utah are perhaps more promising, as both state offices have conducted assessments since 2000. However, Utah did not conduct any PFC assessments within the 17 ACECs it designated with riparian directives, and Arizona conducted only one PFC assessment for the ten ACECs it designated with riparian directives (Table 8).

Table 8. List of ACECs with management directions requiring special attention for riparian areas.

State / ACEC	Directive Summary	PFC - Date
COLORADO		
Lower Colorado River	Protect riparian values	NO DATA
Rio Grande River Corridor	Terminate waterpower site withdrawals if WSR or NCA designation is approved	NO DATA
Blanca Wildlife Habitat Area	Maintain 1,600 acres of wetlands and enhance additional 1,175 acres of historical wetlands	NO DATA
Trickle Mountain	Continue riparian demonstration project	NO DATA
East Douglas Creek	Re-establish riparian vegetation	NO DATA
NEW MEXICO		
San Luis Mesa Raptor Area	No surface disturbance	NO
Gila Lower Box	Secure in stream flow	NO
Organ/Franklin Mountains	Protect and enhance riparian areas	NO
Guadalupe Canyon	Comply with riparian management objectives	NO
Sacramento Escarpment	Control exotics and plant native trees, allow grazing only if riparian meets PFC	YES - 1996
Three Rivers Petroglyph Site	Control exotics and plant native trees	NO
Fort Stanton	Maintain PFC, establish native vegetation.	NO
Overflow Wetlands	Acquire water rights and enter into cooperative agreements to protect riparian areas	NO
Winter Range	Meet Riparian/Aquatic SMA guidelines	NO
La Cienega	Ensure in stream flows for riparian health	NO
ARIZONA		
Virgin River Corridor	Acquire in stream water rights, monitor water quality.	NO
Black Mountains	Fence Burns Springs riparian area.	NO
Burro Creek	Withdraw riparian area from mineral entry, collect data to acquire in stream flow	YES - 2001
Carrow-Stevens Ranches	Acquire spring and in stream flow water rights.	NO
Hualapai Mountain	Acquire water rights	NO
Wright-Cottonwood Creek	Withdraw from mineral entry, acquire water rights, designate as a demonstration riparian area and develop demonstration plan	NO
Three Rivers	Withdraw riparian zone from mineral entry, acquire water rights, continue riparian inventory and monitoring	NO
Vekol Valley Grassland	Repair and maintain existing dike system and fencing	NO
Hot Springs Watershed	Perfect in stream flow rights, develop riparian ecological site guide program, remove exotics and monitor for threats to natives, ensure protection of riparian area	NO
Turkey Creek	Rehabilitate riparian area	NO
UTAH		
Gandy Salt Marsh	Monitor for improvement in riparian conditions within enclosure	NO
Water/South Fork Indian Canyon	Maintain existing conditions for maintenance of riparian habitat	NO

State / ACEC	Directive Summary	PFC - Date
Bridger Jack Mesa	Excluded from watershed control structures	NO
Nine Mile Canyon	Improve riparian habitat	NO
Blue Springs Wildlife Habitat Area	Acquire water rights	NO
Donner / Bettridge Creek	Acquire water rights	NO
Lake Town Canyon	Improve riparian habitat conditions, maintain water quality	NO
Salt Wells Wildlife Habitat Area	Increase quality and quantity of wetland habitat, acquire water rights, construct fencing	NO
Santa Clara-Land Hill	Restore and protect riparian habitat	NO
Lower Virgin River	Restore and protect riparian habitat	NO
Santa Clara-Gunlock	Restore and protect riparian habitat	NO
Upper Beaver Dam Wash	Pesticide ban, eliminate exotics, restore and improve riparian habitat	NO
Browns Park Complex	Limit surface disturbance, restore and protect riparian habitat	NO
Lears Canyon	Limit surface disturbance, restore and protect riparian habitat	NO
Lower Green River	Limit surface disturbance, restore and protect riparian habitat	NO
Pariette Wetlands	Limit surface disturbance, restore and protect riparian habitat	NO
Red Creek Watershed	Limit surface disturbance, restore and protect riparian habitat	NO

As Table 8 clearly indicates, the BLM has failed to use its only monitoring tool, the PFC assessment, to monitor riparian habitat within ACECs, both in general (Table 7) and within ACECs that have directives to do so (Table 8).

Adequacy of Riparian Monitoring

As discussed above, the PFC assessment method is flawed in several key respects. These flaws and the associated poor record keeping have prevented the PFC assessment from being a useful resource for informing management decisions and conservation initiatives. We cannot overstate the wastefulness of not completing the assessment forms completely, especially the location information section. Common field methodology in place today includes the use of GPS systems or at the very least, of paper based maps and photo points to describe the location of survey activities. Yet, these standard methods of record keeping have not been institutionalized by the BLM. Of the 1,112 PFC records that we were able to obtain from the four state BLM offices, only 474 of these had enough information to identify the Township, Range and Section where the analysis was conducted. Additionally, because the majority of PFC analyses are conducted in accordance with grazing allotment monitoring, none of the records noted if the assessment took place within an ACEC, Wilderness Area or Wilderness Study Area. The result of this poor record keeping means that it is impossible for either the agency or the public to understand the degree to which the BLM has kept up its monitoring of ACEC riparian resource values. One significant exception to this poor record of riparian monitoring, information accessibility and utility is the Price Field Office in Utah.

Setting a New Standard: Price Field Office, Utah BLM



The Price Field Office of the Utah BLM has significantly improved on the documentation and accessibility of PFC analysis conducted within its jurisdiction with the creation of a PFC database. The database electronically organizes all of the PFC forms and allows for efficient searching for a particular assessment. It also includes information on vegetation communities and often includes accompanying photos of survey sites. The database still suffers from the same shortfalls as does the written PFC analysis, but is a significant improvement, primarily because the information is readily accessible and understandable. Unfortunately, we did not find even one other field office in Utah that was taking advantage of this tool.

Sensitive, Threatened and Endangered Species

Bureau of Land Management lands currently provide habitat for many rare and endangered species including some charismatic species such as the bald eagle and black-footed ferret and many less well known species such as the southwestern willow flycatcher and Pecos bluntnose shiner (Table 9). Of particular importance to many of these imperiled species are riparian habitats, which serve as migratory and aquatic species habitat as well as unique upland areas with habitat for sensitive species, such as the desert tortoise. With a mandate to designate ACECs where special management attention is needed to protect "fish and wildlife resources or other natural systems and processes" it is not surprising that the BLM designated many ACECs in order to protect sensitive species habitat, with directives requiring the agency to accomplish specific objectives (Table 9).

To assess the overall effectiveness of the ACEC program at protecting biological diversity and important ecological values on a region-wide scale, we analyzed the distribution of ACECs with respect to 1) known occurrences of species with federal status; and 2) a list of specific focal species that play critical ecological roles for the arid West's various ecotypes (Fig 3, Table 9). For ACECs with sensitive species directives, we have summarized the directive and indicated the number of federal status species occurrences documented within each ACEC, as well as any overlap with our chosen keystone and indicator species (Table 9). By identifying the overlap of all individual rare plants and animal occurrences within ACECs, we were able to assess the effectiveness of current ACEC designations at protecting biological hotspots.

In order to determine whether the current system of ACECs is protecting native wildlife of particular ecological importance we summarized all ACECs that overlapped with the known distribution of our chosen focal species (Table 10). Focal species considered in our analysis included the lesser prairie-chicken, Columbian sharp-tailed grouse, greater sage grouse, northern aplomado falcon, Sonoran desert tortoise, Utah prairie dog, Gunnison's prairie dog and white-tailed prairie dog.

Table 9. ACECs with sensitive species directives. Number of Element Occurrences (EOs) indicates the number of known occurrences of any species with federal status. Habitat overlap indicates if the ACEC overlaps with any of our chosen keystone or indicator species.

State / ACEC	Directive Summary	# of EOs	Habitat Overlap
COLORADO			
Arkansas Canyonlands	Eliminate conflicting uses to protect special status species	0	N/A
Blanca Wildlife Habitat Area	Protect waterfowl nesting habitat	10	N/A
Bull Gulch	Potential Peregrine Falcon re-introduction site	0	N/A
Cross Mountain Canyon	Limit management to preserve habitat character	11	N/A
Deep Creek	Potential Peregrine Falcon re-introduction site	2	N/A
Dillon Pinnacles	No surface disturbance	1	N/A
Droney Gulch	Protect relict plant community habitat	0	N/A
Elephant Rocks	Complete a CRMAPP and address special status plant values to be protected	0	Gunnison's prairie dog
Escalante Canyon	Limit surface disturbance	NO DATA	
Fairview	Limit surface disturbance	28	N/A
Limestone Ridge	Limit management to preserve habitat character	1	N/A
Los Mogotes	Complete a CRMAPP with emphasis on protecting special status species	NO DATA	
Lower Colorado River	Protect Wildlife Value	NO DATA	
Pyramid Rock	Protect rare plant habitat	50	N/A
Ra Jadero Canyon	Complete a CRMAPP and address special status plant values to be protected	1	Gunnison's prairie dog
San Luis Hills	Complete a CRMAPP and protect significant values	11	Gunnison's prairie dog
South Beaver Creek	Do not dispose of lands containing Skiff Milkvetch until further inventory is complete	16	N/A
Trickle Mountain	Emphasize crucial winter and birthing habitats as priority objectives; address special status species	NO DATA	
Unaweep Seep	Protect rare butterfly habitat	2	N/A
West Antelope Creek	Limit surface disturbance on crucial winter range	4	N/A
NEW MEXICO			
Alamo Mountain	Designate Corunda Mtn. Snail as BLM Sensitive	1	N/A

State / ACEC	Directive Summary	# of EOs	Habitat Overlap
Aztec Gilia	Include in Area-wide Rare Plant Habitat Management Plan		NO DATA
Bald Eagle	Provide year round protection of core habitat	260	N/A
Big Hatchet Mountains	Revise existing AMP to address wildlife concerns	1	northern aplomado falcon
Cabazon Peak	Protect raptor habitat and rare cactus species	1	N/A
Central Peloncillo Lease	Protect bighorn sheep and habitat diversity		NO DATA
Cornudas Mountain	Designate Corunda Mtn. Snail as BLM Sensitive	0	N/A
Dona Ana Mountains	Exclude exotics	1	N/A
Elk Springs	Maintain and build wildlife water developments in critical areas	0	N/A
Fort Stanton	Protect and improve habitat, improve vegetative characteristics, limit cave usage	82	N/A
Gila Lower Box	Exclude exotics	27	N/A
Horse Mountain	Close area to domestic sheep and goats	0	N/A
Ladrone Mountain	Re-introduce Desert Bighorn Sheep	0	N/A
Lonesome Ridge	Maintain and increase populations of all sensitive species	14	N/A
North Pecos River	Prevent taking of Pecos Bluntnose Shiner, monitor aquatic habitat	2	N/A
Ojito	Protect rare cactus species, implement Upper Rio Puerco Habitat Management Plan	0	N/A
Organ / Franklin Mountains	Protect listed Sneed's Pincushion cactus, protect sensitive and relict plant communities	19	N/A
Overflow Wetlands	Closure to waterfowl hunting, prevent taking of Pecos Pupfish, monitor habitat	12	N/A
Roswell Cave Complex	Close or limit access to caves to protect habitat and resources		NO DATA
San Luis Mesa Raptor Area	Coordinate to inventory all power lines, improve raptor prey habitat		NO DATA
San Pedro	Install boundary signs	0	N/A
Sawtooth	Limit visitation		NO DATA
Tent Rocks	Protect bird habitat and improve big game winter habitat	1	N/A
Wind Mountain	Designate Corunda Mtn. Snail as BLM Sensitive	0	N/A
ARIZONA			
Appleton Whittell	Implement 1986 BLM / Audubon MOU	106	N/A
Aubrey Peak	Limit activity season to protect Bighorn Sheep habitat	5	Sonoran desert tortoise
Black Mountains	Limit grazing, ORV, mining to protect desert tortoise and other sensitive species	38	Sonoran desert tortoise
Burro Creek	Limit activity near aerie	80	Sonoran desert tortoise
Clay Hills	Implement recovery plan	54	Sonoran desert tortoise
Hot Springs	Evaluate habitat for re-introduction of fish and Desert Bighorn, assess exotics threat	63	Sonoran desert tortoise
Hualapai Mountain	Implement recovery plan	114	Sonoran desert tortoise
Joshua Tree / Grand Wash Cliffs	Limit access to aerie	16	N/A
Marble Canyon	Ban activities other than those benefiting <i>Pediocactus bradi</i>	112	N/A
Three Rivers	Limit access to aerie	102	Sonoran desert tortoise
Vekol Valley Grasslands	Inventory for endangered plant species <i>T. macdougallii</i>	3	Sonoran desert tortoise
Virgin River	Control exotics	243	N/A
White Margined Penstemon	Monitor penstemon and tortoise populations and develop RMP for both	49	Sonoran desert tortoise
UTAH			
Beaver Dam Slope	Limit predator control, manage for desert tortoise	4	N/A

State / ACEC	Directive Summary	# of EOs	Habitat Overlap
Blue Springs	Protect waterfowl and shorebirds through closures, manage for bird habitat, re-establish peregrine falcon	NO DATA	
Bridger Jack Mesa	Exclude from wildlife habitat improvements	0	N/A
Browns Park Complex	Manage and promote bald eagle, peregrine falcon and wild turkey and sage grouse habitat, limit surface disturbance	8	greater sage grouse
Central Pacific Railroad	Perform wildlife maintenance and enhancement	NO DATA	
Donner / Bettridge Creek	Promote maintenance and recovery of Lahontan Cutthroat trout	NO DATA	
Gandy Salt Marsh	Promote biodiversity, inventory and protect TES species, protect vital habitat	NO DATA	
Hovenweep	Enhance wetland areas	0	N/A
Lake Town Canyon	Protect beaver, enhance fisheries habitat, enhance crucial winter range	NO DATA	
Lears Canyon	Limit winter activities to protect crucial deer winter range	0	N/A
Lower Green River	Limit surface disturbance, implement <i>S. glaucus</i> recovery plan, improve bird habitat	34	N/A
Nine Mile Canyon	Maintain special status plant species, implement <i>S. glaucus</i> recovery plan, limit disturbance activities	39	N/A
Pariette Wetlands	Limit disturbance activity, implement <i>S. glaucus</i> recovery plan, maintain potential black-footed ferret, peregrine and bald eagle habitat	9	N/A
Red Bluff	Protect cryptogamic soils	NO DATA	
Red Creek	Protect crucial deer winter range, protect sage grouse, eagle, hawk habitat	5	greater sage grouse
Red Mountain-Dry Fork Complex	Protect crucial deer winter range, protect sage grouse, eagle, hawk habitat	5	N/A
Salt Wells Wildlife Habitat Area	Close to firearms except shotgun during waterfowl season	NO DATA	
Santa Clara- Gunlock	Implement the terms of the Virgin Spinedace Conservation Agreement and Strategy	3	N/A
Santa Clara-Land Hill	Implement the terms of the Virgin Spinedace Conservation Agreement and Strategy	0	N/A
Shay Canyon	Maintain and improve fishery and riparian habitat	0	N/A
Upper Canyon Beaver Dam Wash	Implement the terms of the Virgin Spinedace Conservation Agreement and Strategy	NO DATA	

Targeting Federal Status Species on BLM Land

Forest Guardians believes that the ACEC mandate should be utilized by the BLM to ensure that the diversity of life on public lands is protected. Invoking the ACEC mandate for this purpose is increasingly urgent given the growing number of imperiled species on BLM lands and the increasing political and economic pressure to intensify extractive uses. Currently, though some ACECs ostensibly protect rare or endangered fish and wildlife habitat, many do not.

In order to determine the degree to which the BLM's current system of ACEC designations provide protection for imperiled wildlife we utilized Geographic Information System (GIS) analysis to determine how thoroughly ACECs encompass areas with high numbers of species protected under the Endangered Species Act (ESA). For our purposes, we considered any species with an endangered, threatened or candidate status under the ESA in our analysis. Using data from the Natural Heritage Programs, we summed the number of unique species occurrences for all species by 7.5 minute quadrangle maps for each state. We then calculated the intersection of each quad with ACECs, and this data is presented in Table 9.

Out of 321 ACECs across the four states, only 63 have specific management directives to ensure the protection of sensitive species (Table 9). Many of these directives relate to the agency's responsibility to maintain or improve special status species habitat, or the need to reintroduce populations of special status plants. Table 9 indicates that there is considerable variation among ACECs with regard to the number of federally listed species element occurrences. It is therefore evident that the current planning and designation of ACECs has often failed to take into account the distribution of special status species on a regional or state-wide scale. Many of the ACECs listed in Table 9 have zero occurrence records for federally listed species, while others have dozens or even hundreds.

In terms of total acreage, only 11% of ACECs contain 10 or more known occurrences of federally protected species. This hit-or-miss pattern among ACECs is, in part, due to the sporadic distribution of listed species across the landscape. However, given the fact that we summed the element occurrence records for *all* listed species, the numbers are low.

To illustrate this point, we can compare the ratio of ACEC element occurrences to general BLM land element occurrences [number of element occurrences within ACECs having sensitive species directives : number of element occurrences within general BLM lands], they are: Colorado 1:6.2, New Mexico has 1:1.8, Arizona 1:2.5 and Utah has 1:4.1. If any of these states were doing a very good job of targeting federal status species habitat for ACEC designation, we would expect the ratio to be greater than one. The fact that the actual values of the ratios range from 0.16 - 0.55 indicates that none of the states has done a particularly good job at targeting federal status species habitat on BLM lands for ACEC designation.

The Mescalero Sands ACEC: Ignoring the Most Pressing Conservation Need



Photos courtesy of Jess Alford

The Mescalero Sands ACEC is a 10,000-acre area in southeastern New Mexico that is administered by the Roswell Field Office of the BLM. The ACEC was designated in 1997 to protect archeological, flora and fauna and scenic resource values. One of the most significant components of the native fauna found within the ACEC and the area is the lesser prairie-chicken. The prairie-chicken, a candidate for ESA listing, has declined by 70-90% from its historical range since the 1920s (USFWS 1998, Bailey 1999 & 2002). Incredibly, notwithstanding the fact that the ACEC was designated to protect native fauna, there are no management directives for the conservation of the lesser prairie-chicken. Though inexcusable, perhaps the best explanation for this significant oversight is that the prairie-chicken's habitat overlaps with areas that are important to both the livestock and oil and gas industries.

Of equal concern is the fact that recovery of this unique native of the Southern Great Plains will not be achieved if only 10,000 acres of public land habitat is managed to ensure its survival. The Mescalero Sands ACEC, as is the case with many ACECs across the Southwest, is simply too small to achieve any measurable conservation benefit. Unless bigger portions of the landscape are designated and protected, the BLM will fail to comply with its ACEC mandate to designate "areas where special management attention is needed....to protect important fish or wildlife resources."

The decline of the bird in New Mexico has been a result of habitat loss to oil and gas development, intensive livestock grazing and the extensive use of herbicides for rangeland 'improvements' coupled with long-term drought (USFWS 1998). An increase in avian predators associated with oil and gas infrastructure has led to decreased survival rates among fledglings. Still more detrimental to the bird is the noise from oil and gas pump jacks, which disrupt the birds mating vocalizations and males' ability to attract mates (Smith et al. 1998).

Further, despite the limited value of this ACEC in conserving this declining species, the BLM has made some curious decisions pertaining to the management of the area. Although the agency is prohibiting additional range improvements associated with livestock grazing and herbicide treatments, it has restricted livestock grazing on only 1,800 acres of the ACEC. While the ban on herbicide treatments will certainly benefit the prairie-chicken, allowing 80% of the ACEC to remain allocated for livestock grazing preference will almost certainly result in damage to the bird's habitat. Additionally, the 1,800 acres that was not allocated for grazing preference was previously a grazing enclosure, meaning that it now has *less* protection from livestock grazing than it did prior to the ACEC designation. Although the ACEC has been closed to future oil and gas leasing, there are still 10 active wells within its boundaries, and many hundreds of wells surrounding the ACEC. This ACEC is also a popular ORV recreation area, and only the 1,800 acres of the ACEC that are not allocated for livestock grazing preference are closed to ORV use. Most striking is the lack of any management directives for the conservation of the lesser prairie-chicken. Despite being an 'Area of Critical Environmental Concern', the Mescalero Sands ACEC continues to be degraded by oil and gas activities, livestock grazing and ORV use and the lesser prairie-chicken continues its alarming decline. Although the BLM has taken some positive steps towards limiting land uses that degrade the prairie-chicken's habitat, much more needs to be done if Mescalero Sands is to provide a safe haven for the birds it harbors.

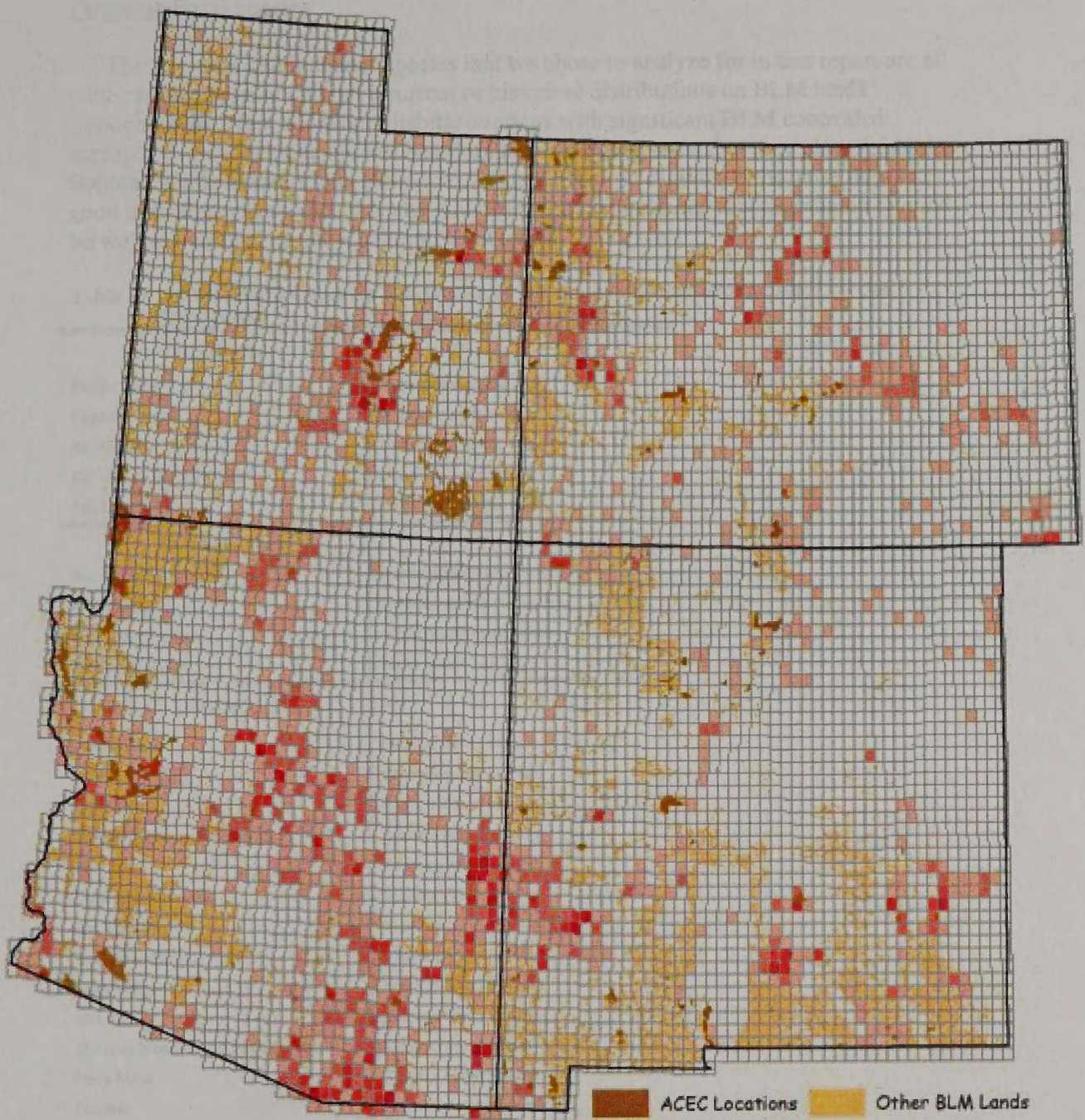


Figure 3. "Hotspots" of Federal Status species, ACECs and BLM Land. The map shows the relative density of known localities for species with Federal Status in shades of red. Darker shades of red indicate higher relative species numbers. Absolute number of known occurrences varies by state.



Figure 1. "Aerial" view of the study area, showing the location of the study area within the larger context of the region. The map shows the location of the study area within the larger context of the region. The map shows the location of the study area within the larger context of the region.

Targeting Focal Species

The keystone and indicator species that we chose to analyze for in this report are all wide-ranging species that have current or historical distributions on BLM lands throughout the West and whose habitat overlaps with significant BLM controlled acreage. We chose these species based on key ecological roles that they play within the Sonoran, Chihuahuan, Great Basin and Colorado Plateau regions, or because they are good indicators of ecological health and based on the likelihood that their habitat would be well represented on BLM administered lands.

Table 10. ACECs that overlap the distribution of our chosen keystone and indicator species.

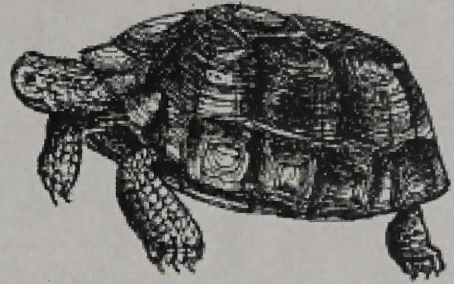
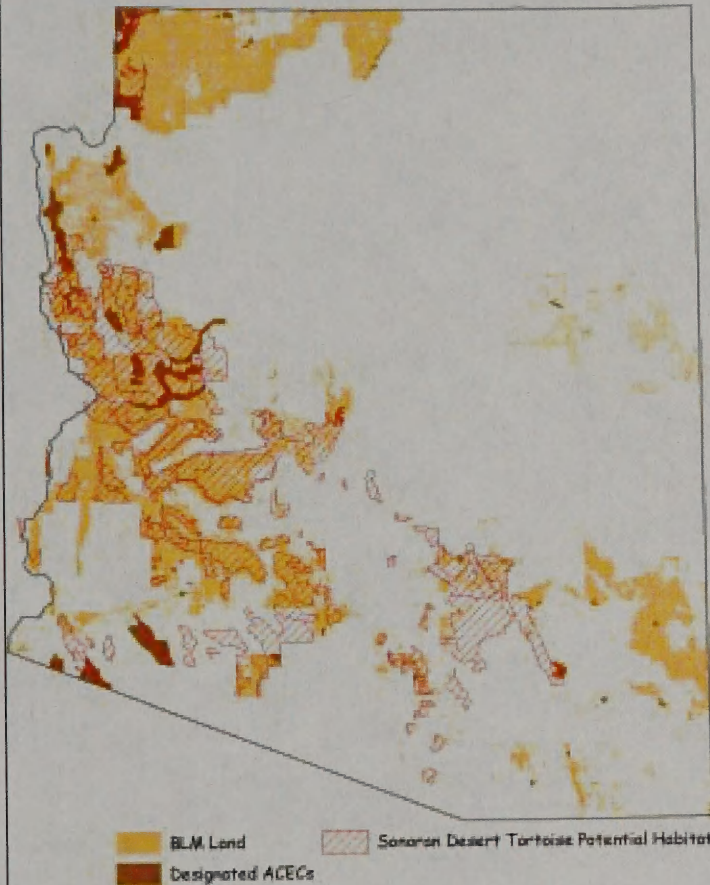
State / ACEC	Keystone / Indicator Species
COLORADO	
Badger Wash	white-tailed prairie dog
Elephant Rocks	Gunnison's prairie dog
Ra Jadero	Gunnison's prairie dog
Rio Grande River Corridor	Gunnison's prairie dog
San Luis Hills	Gunnison's prairie dog
NEW MEXICO	
Big Hatchet Mountains	northern aplomado falcon
Granite Gap	northern aplomado falcon
Guadalupe Canyon	northern aplomado falcon
Mescalero Sands	lesser prairie-chicken
ARIZONA	
Aubrey Peak	Sonoran desert tortoise
Black Mountains	Sonoran desert tortoise
Burro Creek	Sonoran desert tortoise
Carrow-Stephens Ranches	Sonoran desert tortoise
Clay Hills	Sonoran desert tortoise
Coffee Mountain	Sonoran desert tortoise
Hot Springs	Sonoran desert tortoise
Hualapai Mountain	Sonoran desert tortoise
Larry Canyon	Sonoran desert tortoise
McCracken	Sonoran desert tortoise
Mohawk Mountains & Sand Dunes	Sonoran desert tortoise
Perry Mesa	Sonoran desert tortoise
Poachie	Sonoran desert tortoise
Table Mountain	Sonoran desert tortoise
Three Rivers	Sonoran desert tortoise
Tinajas Altas Mountains	Sonoran desert tortoise
Vekol Valley Grasslands	Sonoran desert tortoise
Waterman Mountains	Sonoran desert tortoise
White Canyon	Sonoran desert tortoise
White Margined Penstemon	Sonoran desert tortoise
Wright-Cottonwood Creek	Sonoran desert tortoise
UTAH	
Brown's Park Complex	greater sage grouse
Red Creek	greater sage grouse

The small number of ACECs listed in Table 10 indicates that ACECs generally miss the mark in covering the habitat of these keystone and indicator species, despite the fact that the BLM is the major federal landholder of their habitat. These results are discouraging because they indicate that ACEC planning and designation has not accounted for the protection of species who play a primary role in ecological function or whose presence may be an indicator of ecological integrity. Particularly worrisome is the absence of mountain plover element occurrences from ACECs in Colorado and New Mexico, the absence of prairie dog element occurrences from ACECs in Utah and New Mexico and the small number of ACECs with habitat for prairie dogs, sage grouse and lesser prairie-chickens (Table 10). The keystone role of prairie dogs in arid ecosystem functioning is well documented, and they are relatively widespread on BLM lands in Colorado, New Mexico and Utah (Kotliar et al. 1999). Despite this fact, only a few ACECs in Colorado have prairie dogs present, and the Utah prairie dog is not represented at all (Table 10).

The precipitous decline of the lesser prairie-chicken has been documented for many years, and Forest Guardians has petitioned the BLM for a meaningful ACEC designation for the bird (USFWS 1998, Bailey 1999). Unfortunately, the only ACEC with prairie-chicken element occurrences is the 10,000 acre Mescalero Sands, a tiny area with significant oil and gas development that threatens the bird's survival. Protecting habitat for focal species that play keystone, umbrella and indicator roles should be a high priority on ACECs, yet focal species are under-represented within ACECs in New Mexico, Arizona, Colorado and Utah. This indicates that as a tool for broad scale habitat and species conservation, ACEC designation is not as effective as it could be.

The Arizona BLM however, has done a good job in targeting Sonoran desert tortoise populations for ACEC designation. Several of the Arizona ACECs contain over 100 separate element occurrences for the desert tortoise, a species that is in decline throughout much of its range (Desert Tortoise Council 1984, Averill-Murray 2000). Given the threatened status of Mohave populations of the desert tortoise, the Arizona BLM has, at least for the desert tortoise, utilized the ACEC conservation tool to proactively protect this species. However, it remains to be seen how effective these ACEC designations will ultimately be in protecting tortoises. Many of the ACECs with large tortoise populations are also subject to activities and circumstances that harm desert tortoises, including ORV use, livestock grazing and vast amounts of inholdings and may lack adequate management directives to protect the species (for examples, see Table 9).

A Step in the Right Direction: Protecting the Sonoran Desert Tortoise with ACECs in Arizona



The Arizona BLM is the only state of the four examined in this report that has managed to protect a substantial amount of habitat for one of the focal species we analyzed. Sonoran desert tortoise populations occur primarily on BLM land in Arizona. The adjacent map illustrates the overlap of ACECs with the potential range of the desert tortoise in Arizona. Although it is possible for ACECs to play an even larger role in protecting the Sonoran desert tortoise throughout its range, existing ACECs do contain many of the larger Sonoran populations of the desert tortoise.

Notwithstanding the potential positive outcome of the inclusion of this tortoise habitat within Arizona ACECs, many of the tortoise ACECs lack management prescriptions that ensure effective protection of their values. In addition, where effective management prescriptions are in place, the BLM failed to provide any indication of whether or not they are being adequately enforced.

Threats to BLM Areas of Critical Environmental Concern

Today, a broad range of threats are jeopardizing BLM designated ACECs. These threats are both internal, such as those derived from agency permitted activities, or external, such as land use or pollution from adjacent private and state lands. How the ACEC program ultimately fares against these threats will be decided by how the agency responds with appropriate management prescriptions designed to mitigate or reduce problem activities. Too often, politically powerful interests exercise undue influence on the BLM, preventing timely and appropriate management decisions needed to protect resource values. Particularly powerful interest groups include oil and gas developers, the ranching industry and, increasingly, off-road vehicle groups.

While ACECs are a relatively small component of the vast acreage under BLM jurisdiction, the agency has still not shown that it has the resolve necessary to protect these unique resources. As a result, damaging land uses continue to occur on and around ACECs throughout the West, undermining the values that ACECs were intended to protect. Unless this trend is reversed and the BLM takes the initiative to bar incompatible land uses, the program will ultimately fail.

Oil and Gas

Oil and gas development is prevalent in many areas throughout the four corners states, particularly on BLM lands (both surface and subsurface estate). Leasing of BLM land for natural resource production was among the BLM's top priorities prior to the 1976 passage of FLMPA and continues to pose a serious threat to arid ecosystems (Tables 10 & 11). Oil and gas development is particularly difficult to mitigate, chiefly because the impacts of retired wells, roads, pipelines and other infrastructure persist for many years after the wells are abandoned (see p. 36). Many ACECs are littered with abandoned well structures and pollutants, while still others have active oil and gas drilling taking place (Table 11). Many of these wells were in place, or indeed abandoned, prior to ACEC designation.

Table 11. ACECs with oil and gas wells, either active or inactive and a summary of oil and gas related directives. (NSO - No Surface Occupancy)

State / ACEC	No. Of Wells	Directive Summary
COLORADO		
East Douglas Creek	99	N/A
Oil Spring Mountain	13	N/A
Coal Draw	10	No surface occupancy
Badger Wash	4	N/A
White River Riparian	3	N/A
Coal Oil Rim	2	N/A
Adobe badlands	2	Oil and gas leases will contain an NSO stipulation
Lookout Mountain	2	N/A
Moosehead Mountain	2	No surface occupancy
Dudley Bluffs	1	No surface occupancy
Duck Creek	1	No surface occupancy
Ryan Gulch	1	No surface occupancy

State / ACEC	No. Of Wells	Directive Summary
South Cathedral Bluffs	1	No surface occupancy
Blacks Gulch	1	No surface occupancy
Upper Greasewood Creek	1	No surface occupancy
Irish Canyon	1	N/A
NEW MEXICO		
Crow Canyon District	119	Closed to oil and gas leasing
Hogback	67	No oil and gas leasing
Simon Canyon	53	N/A
Bald Eagle	33	Special stipulations or siting requirement for APDs are on existing leases
Ojito	30	No surface occupancy in Querencia Watershed Study Area
Pecos River / Canyons Complex	18	NSO Stipulations for 4,457 acres for future fluid mineral leases, no oil and gas activity until archaeological impacts mitigated
Largos School / Hooded Fireplace Ruins	12	N/A
Mescalero Sands	10	Closed to future oil and gas leasing
Torreón Fossil Fauna West	10	N/A
Elk Springs	7	No surface occupancy in Research Natural Area, No surface disturbing activities 11/16 through 5/14
Tapacito / Split Rock Ruins	6	Closed to oil and gas leasing
Overflow Wetlands	5	170 acres of buffer around wetlands, and 170 acres of escarpment will be protected by applying "no surface occupancy" restrictions to future oil and gas leases
San Luis Mesa	3	No surface disturbing activities from 2/1 through 7/1
Blue Spring	3	N/A
Dark Canyon	2	NSO stipulations to future oil and gas leases on 3,220 acres, seasonal drilling limits on 730 acres to reduce visual impacts to Carlsbad Caverns National Park during the heavy use season
Torreón Fossil Fauna East	2	N/A
Sombrillo	1	N/A
Ladron	1	Fluid leasing stipulations SRA-1 and SRA-2
Chosa Draw	1	No Surface Occupancy stipulation will be attached to future oil and gas leases on 1,160 acres
North Pecos River	1	About 2,800 acres of federal minerals will be closed to future oil and gas leasing. About 2,120 acres will be open to future leasing with no surface occupancy
ARIZONA		
	N/A	N/A
UTAH		
Alkali Ridge	101	N/A
Cedar Mesa	94	N/A
Pariette Wetlands	91	N/A
Red Creek	79	N/A
I-70 Scenic	27	Geophysical Activity-Surface Restrictions, No Oil and Gas surface occupancy
Nine Mile	25	N/A
San Rafael Canyon Middle	7	Oil and Gas surface restrictions, Geophysical Activity-Surface Restrictions
Red Mountain	6	No surface occupancy to prevent scarring or disturbance
San Rafael Reef North	4	Geophysical Activity-Surface Restrictions, No Oil and Gas surface occupancy
Warner Ridge / Ft. Pierce	4	No surface occupancy will be applied to fluid materials leasing to avoid soil loss and irreparable impacts to poppy habitat
Hovenweep	4	Visual protection zone special emphasis area (880 acres) corresponds to the areas leased for oil and gas with NSO stipulations prior to

State / ACEC	No. Of Wells	Directive Summary
		adoption of the RMP
Dry Lake	2	N/A
San Rafael Canyon Lower	1	No Oil and Gas Leasing
Sids Mountain	1	No Oil and Gas surface occupancy
Lower Green River	1	N/A
Indian Creek	1	N/A

Oil and Gas Impacts on BLM Land in New Mexico

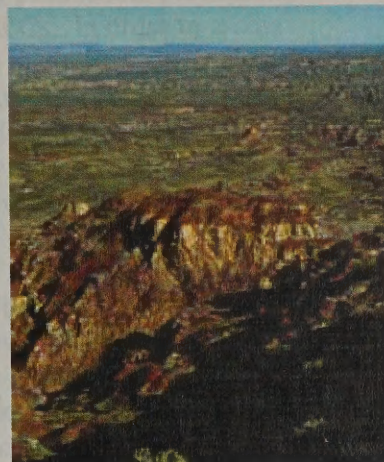


File photos, unknown source

These photos, from the Cato oil field managed by the Roswell Field Office of the New Mexico BLM, document some of the environmental impacts from oil and gas exploration on public lands. Clockwise from upper left, the photos show 1) warning signs indicating toxic gases and explosive hazards 2) oil leaking from a storage tank 3) leftover equipment and the charred landscape after a well has been abandoned, and 4) bird mortality caused by open and leaking tanks.

Oil and gas impacts on the land are well documented. These impacts include pollution of the ground and surface water, habitat fragmentation due to construction of roads and structures, habitat disturbance, displacement of natural flora and fauna, introduction of exotic plants and noise pollution (Soule et al. 1992, Smith et al. 1998). Power lines and associated infrastructure often result in an increase of avian predators, which disrupts predator-prey relationships. Open-air tanks containing saline solutions are sometimes used in oil and gas production, and these tanks are known to be a cause of avian mortality (New Mexico BLM 2003).

Lookout Mountain: An ACEC in Name Only?



Photos courtesy Colorado Natural Areas program, <http://parks.state.co.us/cnap/>

The Lookout Mountain ACEC in the Little Snake BLM field office of Northwest Colorado is a biologically diverse and geologically unique ACEC that is now threatened by imminent oil and gas development. The 6,500-acre ACEC is also a part of the State's Colorado's Colorado Natural Areas Program. The management directives for Lookout Mountain instruct the BLM to "protect or enhance remnant plant associations, Colorado BLM sensitive plant species, and scenic quality," yet in 2002 the Colorado BLM authorized the leasing of the area for new oil and gas exploration on three separate parcels of land within the ACEC. All three of the parcels approved for leasing occur on the ridge that overlooks the proposed Vermillion Basin Wilderness and one of the parcels is on the high point of Lookout Mountain. The ACEC is currently devoid of any permanent structures, contains only one dirt road and offers sweeping views of the proposed Vermillion Basin Wilderness Area.

The Lookout Mountain ACEC is home to a unique geological remnant of a once extensive tertiary alluvial plain that covered much of Colorado over 26 million years ago. The flat-topped mountain is capped with flood and mudflow conglomerates that originated from the Uinta Mountains to the northwest. This conglomerate soil provides habitat to four plant species of special concern, the debris milkvetch, the tufted catseye, the rock tansy and the hairy townsendia. In addition, the ACEC is also home to a special status plant community, the xeric sagebrush shrubland, and the Colorado Natural Areas Program describes the ACEC as having "high quality examples" of two plant associations, cold desert shrublands and pinyon-juniper woodlands, representative of pre-settlement vegetation that are now rare in Colorado. The BLM's own Geologic Advisory Group has recommended that the area be designated as an Outstanding Natural Area for its unique soils and 1700-foot bluffs that provide exposures of the colorful Laney Member of the Green River Formation.

Despite its unique botanical resources and scenic values, the BLM approved oil and gas development within the Lookout Mountain ACEC without prohibiting surface disturbance, instead asserting that "general oil and gas stipulations" would be enough to adequately mitigate impacts to scenic resources. The actions were approved under a general "Colorado Oil & Gas Leasing & Development Environmental Impact Statement (EIS)" issued by the state office of the BLM. The unique resource values of Lookout Mountain, together with its designation as an ACEC, makes the proposed leasing controversial enough that the action should require a site-specific Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). Although the BLM did acknowledge the controversial and significant impacts of leasing lands for oil and gas exploration within the Vermillion Basin by preparing an EA for proposed leases in the northwest corner of the Vermillion Basin Proposed Wilderness Area, the agency did not produce a site-specific NEPA analysis addressing leasing within the Lookout Mountain ACEC. These and other legal issues surrounding the BLM's failure to adequately address the protection of the resource values located within the Lookout Mountain ACEC has led to ongoing legal challenges over the approval of the Lookout Mountain lease sale.

The Bush administration's policy to increase domestic energy production, particularly oil and gas development on public lands, has taken its toll on ACECs. In order to assess the impact of increased energy production on the resource values of ACECs, we analyzed oil and gas lease sales from the past two years for overlap with ACECs (Table 12). The data indicate that a total of 40 oil and gas lease sales within 18 ACECs have taken place in the last 24 months (Table 12). The total acreage of land that has been leased for oil and gas development is 30,839 acres (Colorado 14,497 acres, New Mexico 1,206 acres, Utah 15,136).

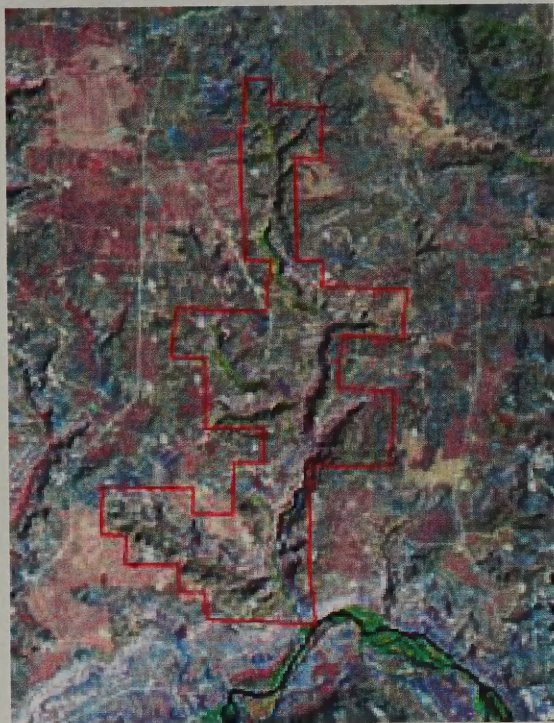
The majority of lease sale documents for the Colorado and Utah sales did mention that the sale was partially or fully contained within an ACEC, however, only Utah lease sale documents consistently addressed the resource values of the ACECs in question (Table 12). Additionally, only one lease sale, UT0045 (Cedar Mesa), actually addressed mitigation measures for impacts to ACEC resource values. Although New Mexico had by far the least amount of leased ACEC acreage, none of the lease sale documents mentioned ACECs at all. Where ACECs already have No Surface Occupancy (NSO) management directives, states offices sometimes fail to disclose these ACEC specific stipulations in the lease sale notices. For instance, of the lease sales documented in Table 12, Colorado failed to disclose NSO stipulations for two of the nine ACECs with NSO directives. Likewise, New Mexico failed to disclose the NSO stipulations for the three leases it sold within ACECs having NSO directives. Only Utah provided full disclosure of existing ACEC NSO stipulations for the single ACEC that had an NSO management directive. Failure to disclose NSO stipulations for oil and gas exploratory leasing within ACECs is a major indiscretion on the part of the BLM. Federal law dictates that once a lease sale is completed, the BLM (or other federal agency) must abide by the terms, conditions and provisions agreed to when the leases were issued, "except where compliance would be inconsistent with other statutory requirements" (40 CFR 1500.3).

Additionally, there is some evidence that the BLM practices a double standard with regard to energy development on ACECs. A February 2003 report produced jointly by the BLM and the Department of Energy to examine the potential for renewable energy development on public lands excluded ACECs from consideration on the grounds that "ACECs are BLM lands excluded from development," (p. 6, BLM & DOE 2003). While we laud the agency's acknowledgement that ACECs must be protected from incompatible uses, we believe the BLM's widespread failure to establish a similarly strict standard for oil and gas extraction within ACECs is an example of the agency's blind commitment to energy extraction at the expense of sensitive public lands resources.

Table 12. Analysis of oil and gas lease sales overlap with ACECs for the past 2 years. Lease acreages are total acreages and may or may not be entirely contained within the ACEC, but are included because they contribute to the total potential development impact. (NSO = No Surface Occupancy)

Contribute to the total potential development impact. (NSO = No Surface Occupancy)							
State / ACEC	Parcel ID	Parcel Acres	Lease Mentions ACEC	Lease Mentions ACEC Values?	Lease Addresses ACEC Mitigations?	O & G Directive?	Directive Summary
Colorado							
Arkansas Canyonlands	COC66369	488				YES	NSO - fluids
	COC66368	940					
Badger Wash	COC65778	1,120	X	X		NO	
	COC65777	296	X	X			
Deer Gulch	COC66206	1,282	X			YES	NSO
	COC66210	400	X				
Duck Creek	COC66735	889	X			YES	NSO
Lower Greasewood Creek	COC66240	1,280	X			YES	NSO
Lookout Mountain	COC65847	100	X	X		NO	
	COC65846	150	X	X			
Raven Ridge	COC65850	1,440	X			YES	NSO
	COC65851	1,602	X				
Ryan Gulch	COC66585	736	X			YES	NSO
White River Riparian	COC66767	225	X			NO	
	COC65834	614	X				
	COC65835	334	X				
	COC65837	139	X				
	COC65839	282	X				
	COC65842	316	X				
	COC66247	526	X				
	COC65849	850	X				
New Mexico							
Overflow Wetlands	200210058	363				YES	NSO around wetlands
	200307082	406					
Chosa Draw	200201023	437				YES	NSO – 1,160 acres
Arizona	N/A						
Utah							
Cedar Mesa	UT045	195	X	X	X	NO	
Lears Canyon	UT016 - 127	1,640	X	X		YES	NSO
Lower Green River	UT071	1,779	X	X		NO	
Nine Mile	UT132	1,600	X	X		NO	
	UT127	1640	X	X			
	UT060	320	X	X			
	UT130	1,561	X	X			
	UT131	990	X	X			
	UT133	614	X	X			
Pariette Wetlands	UT071	1,779	X	X		NO	
Red Creek	UT002	400				NO	
Red Mountain – Dry Fork Complex	UT049	1,726	X	X		NO	
	UT103	487	X	X			
	UT102	1,702	X	X			
	UT095	682	X	X			
	UT091	1,440	X	X			

Oil and Gas: Cumulative Impacts on Simon Canyon ACEC, New Mexico



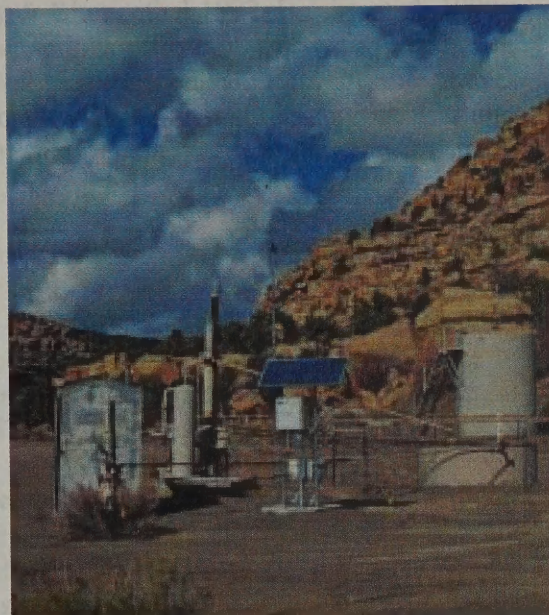
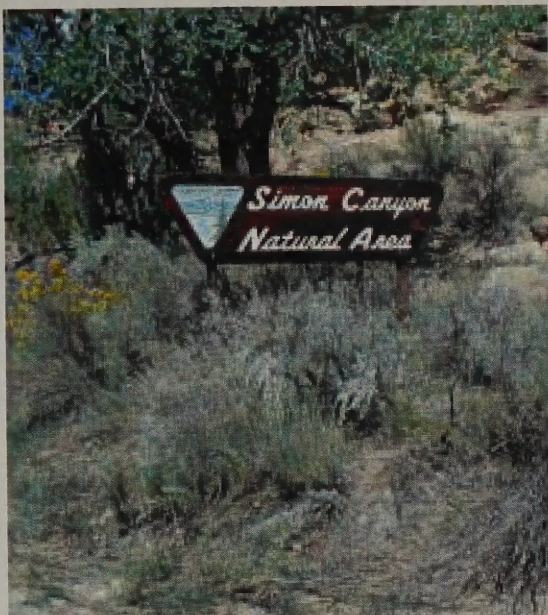
1989



2002

These images show additional oil and gas development within and around the Simon Canyon ACEC for the period 1989-2002. In these composite images, the red line delineates the boundary of the ACEC, water appears dark blue, vegetation is green, and graded or barren areas appear nearly white. Oil and gas fields appear as white spots (well pads), connected by white lines (roads). Satellite images by Sky Truth.

New Mexico's San Simon ACEC is an unfortunate example of what oil and gas development can do to the landscape when the agency disregards its ACEC mandate. Though designated in 1980 to protect ecological and cultural values, flora and fauna and scenic resources, the BLM has permitted extensive oil and gas development that threatens these values. Despite the distinction of being the first ACEC designated in the four corners states, the site has been subject to ongoing oil and gas development for more than 20 years. The 3,700-acre ACEC has 37 well pads and staging areas that total over 167 acres and average 9 acres each. There are a total of 53 oil and gas wells, all of them active, within the ACEC boundary as well as 11.8 miles of road network. Of the 53 existing wells, 19 were built after the area was designated an ACEC, 9 have unknown construction dates, 10 were constructed after January 1, 1990 and 3 new wells were drilled in 2002.



In 2003, the BLM approved the drilling of 4 new wells, along with the maintenance of 3 existing wells. All of the 2003 wells are for natural gas production. We examined the Application for Permit to Drill (APD) for each of these new wells to determine the potential impact of the well construction and to assess the degree to which developers were addressing ACEC resource values and planning impact mitigation. Incredibly, none of the APDs mention the Simon Canyon ACEC, much less the need to restrict drilling density, location or timing in order to protect ACEC values. Three of the APDs were submitted by the Burlington Resources Oil and Gas Company and contain a standard form that indicates that the company is ready to comply with environmental stipulations and surface recovery as outlined by the "responsible government agency". The fourth APD, submitted by the BP America Production Company contains no such language but does state that a contract archeologist performed a survey of the area, including a flora and fauna survey, and submitted the report to the BLM. The four new wells each have a proposed pad construction area of 2-5 acres, for a total of 11.35 acres of new surface disturbance for the construction of the well heads, pipelines, storage tanks and chemical facilities, although three of these wells will be located on historic well sites.

Livestock Grazing

Overview

Livestock grazing is by far the most long-standing and widespread use of public lands and, not surprisingly, ACECs as well. In fact, ranching is more deeply ingrained in the agency culture than any other permitted use on BLM lands, in part because grazing on the public domain long predates the establishment of the BLM. Though efforts to control the damage due to livestock grazing on the public domain first began as early as 1934 when congress approved the Taylor Grazing Act, grazing continues to be a leading cause of species endangerment, contributes significantly to water pollution and habitat degradation and harms recreational opportunities. (BLM 1995).

Livestock grazing has many complex, adverse affects on the arid and semi-arid ecosystems of western United States. Alteration of plant communities, disruption of fragile soil crusts and an increase in invasive weeds are just a few of the direct and

indirect effects of grazing on arid lands (Belsky & Blumenthal 1997, Belsky et al. 1999, Belsky and Gelbard 2000). In addition, the deleterious effects of livestock grazing on western riparian and wetland habitats are well documented. In light of the above mentioned effects on both arid and riparian ecosystems, it is not surprising that grazing has been implicated in the endangerment of nearly every imperiled species with significant habitat in the West.

Grazing and ACECs

The vast majority of BLM lands in the four corners are leased for commercial livestock production (Table 13). Arizona, Colorado, New Mexico, and Utah have a combined total of approximately 55.7 million acres of BLM land, 53.8 million acres of which are designated as grazing allotments (7166 total allotments).

Given its ubiquity on the landscape, the socio-political influence of ranchers and the fact that grazing was permitted long before the designation of any ACECs, it is easy to understand why grazing occurs within 85% of ACEC acreage within the four corners states. Nevertheless because grazing and the associated impacts of livestock production are so disruptive to ecosystem health and function, the agency faces perhaps its greatest challenge in ensuring that grazing does not undermine the protection of both ACEC and the other outstanding natural values present on BLM lands (Freilich et al. 2003).

The Gila Box ACECs: The Problem With Reactive Management



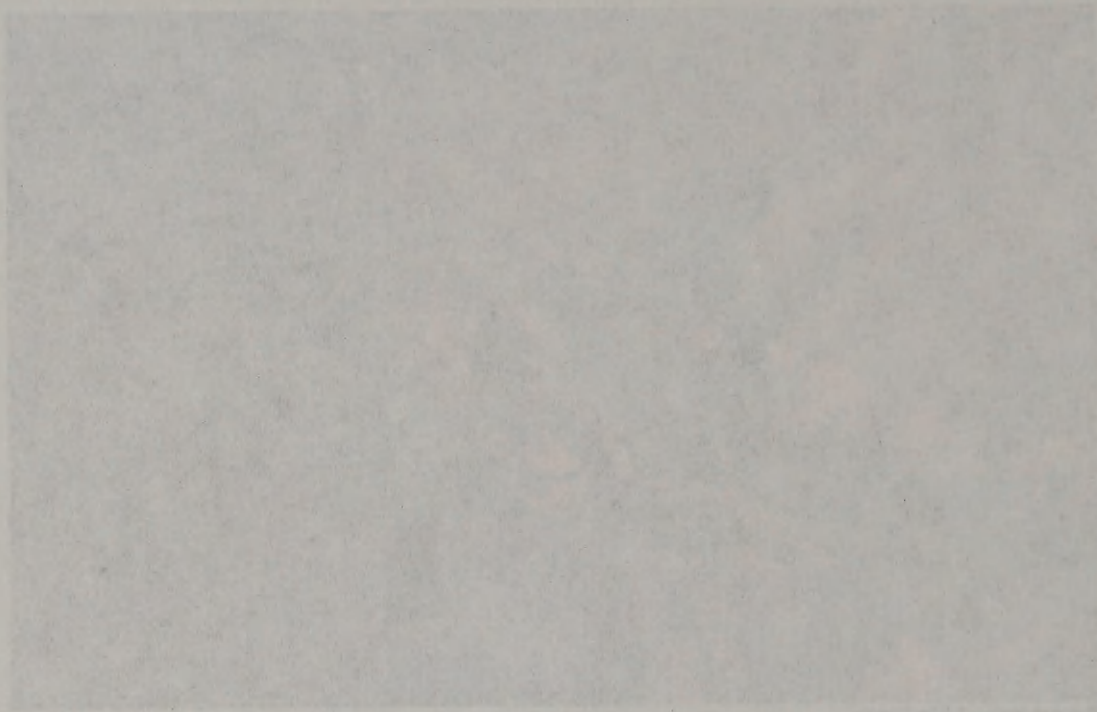
Photo courtesy of John Horning

The BLM's management of livestock grazing within the Gila Middle Box and Gila Lower Box ACECs provide a clear example of the agency's inability to ensure prohibition of incompatible uses within ACECs, even when confronted with indisputable evidence that failing to do so would jeopardize outstanding public values.

The ACECs together encompass 10.8 miles of the Gila River as it flows through the Gila Box Canyon, a geologic formation that limits the floodplain of the river and fosters a rich riparian community. The Gila Lower Box is by far the larger of the two ACECs at 6,490 acres, while the Gila Middle Box is 840 acres in size. Both ACECs are administered by the Las Cruces Field Office of the New Mexico BLM and were designated in 1993 for the protection of riparian habitat and sensitive species. The ACECs are home to a rich assemblage of bird species, billed by the BLM as the "most specious bird community in New Mexico," including the southwestern willow flycatcher (then a Candidate Species for ESA listing). Management prescriptions for the ACECs include closure to vehicles, mineral and fluid leasing and new rights-of-way. The ACECs, particularly the larger Gila Lower Box, had been heavily impacted by livestock grazing prior to their designations, so the agency included management directives to exclude livestock from the river bottom until riparian vegetation became re-established. The directives further instructed the agency to utilize livestock grazing as a "management tool" once the riparian vegetation had recovered.

Unfortunately, riparian habitat continued to be degraded by permitted livestock grazing and trespass grazing within the river bottom was documented by Forest Guardians during the years following the ACECs' designation. Because the RMP that established the ACECs did not name the 'sensitive' species that inhabited the riparian areas (other than a reference to "State-listed and federal candidate species.."), no management actions specifically addressed the protection or enhancement of flycatcher habitat. A June 1993 breeding survey for flycatchers found only one nest and a total of two birds.

The eventual remedy for the poor condition of the Gila River's riparian habitat began in 1995, when the Center for Biological Diversity, Forest Guardians and other parties successfully petitioned for the listing of the southwestern willow flycatcher as threatened under the ESA. With the legal protection of the ESA, the BLM was legally obligated to protect flycatcher habitat, but it did not do so willingly. Despite



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The fourth message that emerges from the data is that the ALEX case is a complex one, involving a number of factors that are not fully understood at this time. The case is a complex one, involving a number of factors that are not fully understood at this time.

the new listing, agency inertia allowed the status quo grazing management to continue for another year after listing. Finally, in 1996 Forest Guardians filed a lawsuit against the New Mexico BLM, on behalf of the flycatcher, that would eventually lead to a solution. In 1998, five years after the ACECs' designation and three years after the listing of the flycatcher, the long overdue elimination of grazing within the riparian areas of these two ACECs, via adequate protective fencing, was fully realized. The irony, of course, is that while the ACEC mandate is intended to require the agency to proactively protect important habitat, in this instance the BLM did not do so until after the ESA listing of the flycatcher. Even then the BLM did not fully protect the area until an ESA citizen suit was brought to protect the flycatcher and its habitat.

Since that time, the BLM has excluded livestock from the Lower Gila Box, 9 miles of the Gila River and 900 acres of the associated riparian habitat. The agency has also acquired 400 acres of private inholdings and constructed hiking trails to circumnavigate sensitive flycatcher habitat. Today the ACECs support healthy riparian habitat and serve as a refuge for a species that still has a long way to go to achieve full recovery. The Gila Box ACECs are a reminder that vigilant public scrutiny of BLM actions is often required to overcome the influence of special interests. Only through active public participation in the decision-making process will the agency truly embrace its conservation mandate.

Table 13. Summary of BLM grazing allotment and ACEC numbers and acreages for the four corners states.

State / ACEC	Total Allotment Acreage	Total Number of Allotments	Total ACEC Acreage	Total Allotment Acreage Within ACECs	Total Number of Allotments Within ACECs
Colorado	7,726,483	2,515	394,715	362,050	173
New Mexico	12,399,352	2,285	519,663	461,527	169
Arizona	11,646,150	860	1,037,010	761,184	117
Utah	29,068,723	1,506	1,258,819	1,125,860	139
Total	60,840,708	7,166	3,210,207	2,710,983	598

Table 13 indicates that vast majorities of the total ACEC acreage in each of the four corners states are also designated as grazing allotments (Colorado 91.7%, New Mexico 88.9%, Arizona 73.4% and Utah 89.4%).

Environmental Compliance

Beginning in the mid 1990's, more than twenty-five years after the passage of the National Environmental Policy Act (NEPA), the BLM started conducting environmental analysis on site-specific decisions to authorize livestock grazing on public lands. The NEPA process is intended to ensure that the environmental consequences of livestock grazing and other activities are considered when the BLM renews grazing permits. As such, the NEPA process is particularly important for ensuring that the natural resources of ACECs are protected from the dangers of overgrazing.

Adherence to, or a failure to adhere to, the spirit and requirements of NEPA is the central issue surrounding the impact of livestock grazing on ACECs. The NEPA process requires the BLM to evaluate the proposed number of permitted cattle, season of use and other relevant factors to determine if there are likely to be adverse environmental effects associated with permit issuance. Each Environmental Assessment (EA) must consider a range of alternatives to the proposed action, assess the relationship between short-term use and long-term productivity, and determine if any irreversible and irretrievable loss of resources are likely to occur. If permit issuance is determined to have no likely adverse impacts, then a Finding of No Significant Impact is issued and the action is implemented. If the EA determines that there may be "significant environmental effects," an Environmental Impact Statement is required.

To assess the degree to which the BLM has complied with the environmental protection requirements of NEPA and its own ACEC mandate, we evaluated each environmental analysis that accompanied grazing permit renewal in each state. Many of the allotments within ACECs have not been through the NEPA process, and we were unable to obtain the EAs for every allotment. Despite our best efforts, we were only able to obtain and review 69%, or 161 EAs out of the 232 EAs that have been completed since 1995.

To eliminate subjectivity, we considered an EA to be environmentally adequate based on a series of criteria: (1) if it discussed a range of alternatives to the proposed action, (2) if it addressed the fundamentals of rangeland health (FRH), (3) if it identified the ACEC in which the allotment in question was contained and, (4) if it addressed the impacts of each alternative on the values for which the ACEC was designated. Forest Guardians believes these are the minimum criteria to ensure that the environmental review adequately considers and protects resource values of ACECs. Table 14 reflects this analysis for all of the EAs that we were able to obtain from the BLM for review.

Table 14. Summary of EA compliance for grazing allotments within ACECs sine 1995.

State / ACEC	Total Number of Allotments Within ACECs	Total Number of EAs Completed for Allotments Within ACECs since 1995	Total Number of EAs Reviewed for Allotments Within ACECs	Total Number of Reviewed EAs Meeting NEPA Standards for Allotments Within ACECs
Colorado	173	94	66	4
New Mexico	169	74	49	15
Arizona	117	45	33	1
Utah	139	19	13	10

The data reveals some startling facts about the BLM's enforcement of the environmental standards when issuing grazing permit renewals for allotments within ACECs. All four of the states failed to conduct environmental analysis for a large percentage of the grazing allotments within ACECs (Colorado 46% with no EA, New Mexico 56% with no EA, Arizona 62% with no EA and Utah 86% with no EA). Equally distressing is the fact that of the EAs we were able to review, Utah was the only state to have more than 30% of the EAs meet the environmental sufficiency requirement (Colorado 6% sufficient, New Mexico 30% sufficient, Arizona 3% sufficient and Utah 77% sufficient). The Utah BLM also has the worst record for conducting EAs for allotments within ACECs, with only 14% having gone through the NEPA process since 1995.

Table 15. Summary of all EAs that mention ACECs. NEPA sufficient EA documents require all of the first 4 columns to be checked.

State / ACEC	Allotment Name	ACEC Mentioned?	Resource Values Discussed?	All of the ACEC Resource Values Identified?	All of the ACEC Resource Values Addressed?	ACEC Management Modified vs. Rest of Allotment?
COLORADO						
West Antelope Creek	Stevens Creek Community	X	X	X	X	X
	Stueben Creek	X				
Arkansas Canyonlands	Lower Tallahassee	X	X	X	X	
South Cathedral Bluffs	Square S.	X	X	X	X	
	Cathedral Bluffs	X	X			
Escalante Canyon	Dominguez Ind.	X	X	X	X	
Duck Creek	Square S.	X	X	X	X	
Ryan Gulch	Square S.	X	X	X	X	
East Douglas Creek	Square S.	X	X	X	X	
	Cathedral Bluffs	X	X			
	Twin Buttes	X				
Yanks Gulch	Greasewood	X	X	X		
	Upper Fletcher Draw	X	X	X		
White River Riparian	Greasewood	X	X	X		
	Little Spring Creek	X	X	X		
Lower Greasewood	Greasewood	X	X	X		
Upper Greasewood	Greasewood	X	X	X		
	Little Spring Creek	X	X	X		
Davis Creek	Deer Gulch	X	X	X		
Irish Canyon	South Bear Ears	X	X	X		
	Browns Park	X	X			
Lookout Mountain	Lookout Mountain	X	X	X		
	Shepherd Spring	X	X			
Phantom Canyon	Dutch Henry	X	X			
	E. Eightmile	X	X			
	Nipple Mtn. Ind.	X	X			
	Bond	X	X			
	Wilbur	X	X			
Coal Draw	Cathedral Bluffs	X	X			
Beaver Creek	E. Eightmile	X	X			
South Beaver Creek	Gold Basin	X	X			
Garden Park	South Garden Park	X				
	Oil Well Flats	X				
	Lower Shaws Park	X				
Rough Canyon RNA	Bangs	X				
Cretaceous Ammonite Site	Mitchell	X				
Oil Spring Mountain	Twin Buttes	X				
NEW MEXICO						
Bald Eagle	Rosa Community	X	X	X	X	X
	Sims Mesa Community	X	X	X	X	X

State / ACEC	Allotment Name	ACEC Mentioned?	Resource Values Discussed?	All of the ACEC Resource Values Identified?	All of the ACEC Resource Values Addressed?	ACEC Management Modified vs. Rest of Allotment?
	Pump Mesa	X	X	X	X	X
Overflow Wetlands	Calumet Ranch	X	X	X	X	X
La Cienega	Tetillitas	X	X	X	X	X
Simon Canyon	Pump Mesa	X	X	X	X	X
Winter Range	Roadside	X	X	X	X	X
	South San Antone	X	X	X	X	X
	Los Cerritos	X	X	X	X	X
	Arroyo Petaca	X	X	X	X	
Ojo Caliente	Mesa Prieta	X	X	X	X	
	Ojo Caliente	X	X	X	X	
	Canada De La Cruz	X	X	X	X	
Black Mesa	Mesa Prieta	X	X			
	Ojo Caliente	X	X			
San Antonio Gorge	San Antone Mountain	X	X	X	X	
Hogback	North Hogback	X	X	X		
Sombrillo	La Pueblo Potrero Comm.	X	X	X		
	Arroyo Seco	X	X	X		
Central Peloncillo Mountain	Winkler Lease	X	X			
	Rodeo Lease	X	X			
	Burro Pass	X	X			
Ladrone Mountain	West Ladron	X				
Gila Lower Box	Sunset Dam	X				
ARIZONA						
Three Rivers Petroglyph	Santa Maria Ranch	X	X	X	X	X
	Chicken Springs	X	X	X	X	
	Burro Creek Ranch	X	X	X		
	Artillery Range	X				
	Greenwood Community	X				
McCracken Desert Tortoise	Chicken Springs	X	X	X	X	
	Artillery Range	X				
Marble Canyon	Badger Creek	X	X	X	X	
Clay Hills	Bagdad	X	X	X	X	
Burro Creek Riparian	Bagdad	X	X	X	X	
	Burro Creek Ranch	X	X	X		
	Black Mesa Unit A	X	X	X		
Larry Canyon	Horseshoe	X	X	X		
Perry Mesa	Horseshoe	X	X	X		
	Cordes	X	X			
Poachie Desert Tortoise	Bagdad	X	X	X	X	
	Burro Creek Ranch	X	X	X		
	Black Mesa Unit A	X	X	X		
	Black Mesa Unit B	X	X	X		
	Greenwood Community	X				
Arrastra Mountain	Burro Creek Ranch	X	X	X		

State / ACEC	Allotment Name	ACEC Mentioned?	Resource Values Discussed?	All of the ACEC Resource Values Identified?	All of the ACEC Resource Values Addressed?	ACEC Management Modified vs. Rest of Allotment?
	Greenwood Community	X				
Black Mountains	Big Ranch Unit A	X	X	X		
	Big Ranch Unit B	X		X		
Joshua Tree Forest	Big Ranch Unit A	X	X	X		
	Gold Basin	X	X			
Vekol Valley Grasslands	South Vekol	X	X			
Hualapai Mountain	Boriana A	X			X	
Virgin River	Lambing-Starvation	X				
	Mountain Sheep	X				
White Margined Penstemon	Boriana A	X				
Aubrey Peak	Artillery Range	X				
Coffepot Mountain	Childs	X				
UTAH						
Lower Virgin River	Curly Hollow	X	X	X	X	X
	Apex Slope	X	X	X	X	
Red Bluff	Curly Hollow	X	X	X	X	X
	Boomer Hill	X	X	X		
Lower Green River	Green River	X	X	X	X	
Nine Mile Canyon	Green River	X	X	X	X	
Santa Clara-Land Hill	Santa Clara Creek Cust.	X	X	X		
	Santa Clara Creek	X	X	X		
	Land Hill	X	X	X		
Alkali Ridge	Montezuma Canyon	X	X			
Beaver Wash Canyon	Hanksville	X				
Red Mountain-Dry Fork Comp.	Dry Fork	X				
I-70 Scenic Corridor	Black Dragon	X				
Lower San Rafael Canyon	Black Dragon	X				
North San Rafael Reef	Black Dragon	X				

For those EAs that do not meet basic environmental standards, some general patterns are apparent. A large percentage of EAs from each of the four states completely fail to mention the existence of ACECs within the relevant allotment (Colorado 53%, New Mexico 50%, Arizona 33% and Utah 23%). For the assessments that did mention ACECs, many simply do not address the resource values of the ACEC or discuss the impacts of the alternatives on those values (Colorado 35% fail to adequately address ACEC values, New Mexico 30%, Arizona 51% and Utah 23%).

Unregulated Grazing on the South Beaver Creek ACEC



The South Beaver Creek ACEC is located within the Gunnison Field Office of the Colorado BLM in central Colorado. This 4,500 acre ACEC is designated for the protection of the skiff milkvetch, a rare endemic plant that is found only within the Gunnison area. The skiff milkvetch is currently listed as a BLM sensitive species, is considered critically imperiled by the Natural Heritage ranking system, and was formerly considered a Category C2 taxa by the U.S. Fish and Wildlife Service (Category C2 indicated that available information meant listing under the ESA had merit—the use of C-2 and C-3 ESA listing candidate categories were discontinued in 1996). The ACEC also contains significant habitat for the imperiled Gunnison sage grouse (also a candidate for ESA listing, pictured bottom right), potential habitat for the federally listed southwestern willow flycatcher and an important perennial riparian corridor, South Beaver Creek, which is known to support cutthroat trout as well as suckers and dace.



Resource values of the South Beaver Creek ACEC are being compromised by unregulated and illegal livestock grazing practiced by the current rancher permittees. The above photos illustrate trespass grazing within a riparian area on the ACEC intended to be off-limits to cattle. The photos document the destruction of fencing and the trampling of the riparian area by cattle (above, left). Overall, the condition of both riparian and upland areas within this ACEC are suffering due to the BLM's lack of political will to enforce its own environmental protection standards for livestock grazing. BLM monitoring of livestock grazing vegetation utilization on the Gold Basin allotment, which is within the ACEC, has shown that the BLM has also failed to enforce requirements of the Gunnison sage grouse Conservation Plan, which requires minimum stubble heights within riparian communities grazed by livestock. Additional impacts to Gunnison sage grouse have been determined through independent monitoring efforts and include a lack of ground cover, a lack of appropriate forage and degraded riparian areas. The current permittee on the allotment has been formally cited by the BLM for trespass violations, including unauthorized grazing and grazing in violation of the terms and conditions of the permit. Additionally, the BLM has documented the permittee's failure to comply with requested actions including failure to move livestock on a timely basis, failure to adequately haul water and illegally grazing yearlings with cow/calf pairs.

Despite substantial documentation of the permittee's ongoing failure to comply with basic environmental requirements on the Gold Basin allotment, the BLM renewed the permittee's grazing permit for a 10-year period on March 15, 2002. The BLM proposed decision did reduce the permitted number of animal unit months; however even this reduced number of cattle will continue to prevent recovery of habitat that is essential for the Gunnison's sage grouse. Moreover, because the AUM reduction is currently under protest by the permittee, old permitted numbers remain in effect. Despite this small step towards mitigating the very serious overgrazing problems that are plaguing the South Beaver Creek ACEC, the BLM failed to address many important environmental issues for the Gold Basin allotment in the EA. For example, the EA states that the previous 10 years of grazing management had been inadequate for improving vegetation cover and meeting minimum standards for upland soil health established by the Colorado Standards and Guidelines. The EA also states that the majority of riparian areas within the allotment are either not functional or are functioning at risk, that plant communities within the allotment are "commonly lacking in productivity, species diversity and density, structure, cover and plant vigor" and that "reduced plant cover has resulted in active erosion over much of the area". Despite these concerns and the well documented environmental damage, the BLM re-authorized a permit to a routine violator to continue livestock grazing within the South Beaver Creek ACEC at a level that is unlikely to allow for improvements in land health or for the applicable Colorado Standards and Guidelines or Standards for Public Land Health to be met in the near future.

Photos courtesy John Graham. Gunnison sage grouse photo courtesy of Dick Williams.

Although there are differences in the states' deficiencies relating to their overall environmental compliance when renewing grazing permits, all four states have significant progress to make if they are to comply with the basic environmental standards to protect the resource values of ACECs. The most obvious problem is that a significant number of allotments within ACECs have not gone through any environmental analysis (Table 14). For these allotments, there is simply no way to guarantee that ACEC resource values are being protected or that anyone is even aware of the need to address ACEC resource values. These are the most egregious violations, and any effort toward reforming the NEPA process for grazing permit renewal should prioritize allotments within ACECs.

Where environmental analyses have been conducted, our analysis uncovered many glaring problems in the NEPA process that are common to each of the four states. For example, many of the allotments overlap with more than one ACEC, but a significant number of the EAs for these allotments fail the environmental adequacy test because they do not mention all of the ACECs in question. Even more worrisome are instances where EAs state explicitly that there are no ACECs within a given allotment, yet we were able to independently verify that there are indeed ACECs that overlap that allotment. These types of errors point to a lack of integration within the agency that does not bode well for protecting ACEC resource values from unregulated livestock grazing. They also suggest that the EA process for grazing permit renewal may often be either rushed or rubber-stamped. The almost ubiquitous nature of public lands grazing, even within ACECs, means that until the BLM prioritizes the protection of ACEC resource values during the

environmental analysis process, livestock grazing will continue to be a major threat to outstanding natural and cultural values within ACECs

Inholdings

Inholdings, which are largely privately held and state owned lands surrounded by public domain lands, are oftentimes a significant threat to ACEC values because of the high potential for incompatible land uses to occur on these non-federal lands. The checkerboard pattern of inholdings within federal lands is common because of the way the Federal Government sectioned western lands during the settlement period, beginning in the late 18th century. The creation of the Public Land Survey System divvied up most western land by Township, Range and Section, each section being approximately 640 acres. Sections (and half sections, quarter sections, etc.) became the default unit of ownership. The result, to the frustration of many, has been a checkerboard pattern of land ownership.

A significant portion of the total acreage of many ACECs within the four corners states are privately held or state owned inholdings (Table 16). We analyzed ACECs with the largest acreage of inholdings to determine where the existence of inholdings was most prominent (Tables 15 & 16). Excluding the Mohawk Mountains and Dunes ACEC and the Tinaja Atlas ACEC, both in Arizona and entirely controlled as Military Reserves, we analyzed for ACECs with the largest amount of inholding acreage (Table 16). These are the only ACECs with over 10,000 acres of inholdings. Interestingly, all but one of these ACECs occur in Arizona or Utah. This raises an important question; namely, is it better to designate small but contiguous ACECs (like New Mexico and Colorado) or large ACECs that typically have many inholdings present (like Arizona and Utah)? Unquestionably, larger protected areas provide better habitat and long-term stability, but the problem of inholdings must be addressed.

Table 16. ACECs with inholding acreage totaling 10,000 acres or more.

ACEC	Total Inholding Acreage	State
Three Rivers Riparian	33,947	AZ
Cedar Mesa	25,700	UT
Gran Desierto Dunes	25,481	AZ
Nine Mile Canyon	23,089	UT
West Antelope Creek	18,272	CO
White Margined Penstemon Reserve	16,803	AZ
Red Mountain-Dry Fork Complex	16,238	UT
Burro Creek Riparian and Cultural	16,163	AZ
Black Mountains Ecosystem	15,849	AZ
Browns Park Complex	13,063	UT
McCracken Desert Tortoise Habitat	10,796	AZ

Inholdings present many problems for land managers attempting to manage lands for the preservation and recovery of biological resources. Inholdings can increase the patchiness of the landscape and magnify edge effects associated with isolated habitat. Inholdings also place ACEC lands at risk from detrimental land use practices that may be occurring on adjacent lands. Recognizing this, many ACECs have directives that require the BLM to work with adjacent land managers or to acquire non-BLM lands that exist

Table 17. ACECs with inholding directives. The table lists those ACECs with directives regarding inholdings, the ownership status and acreage of inholdings and a summary of the inholding directives.

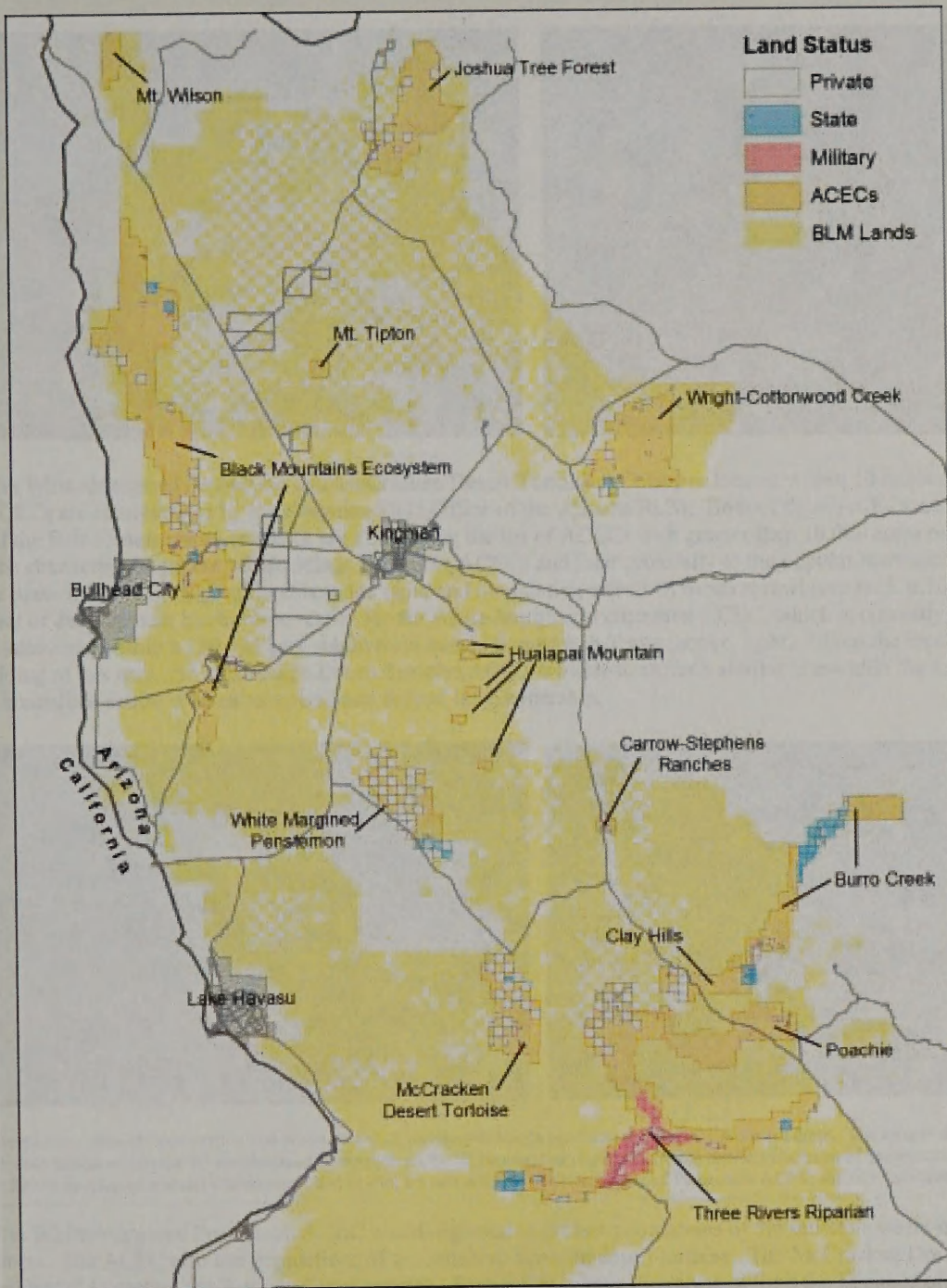
State / ACEC	Inholding Ownership	Acres	Inholding Directive Summary
COLORADO			
Irish Canyon	State	1,115	Allow ownership adjustments when they benefit ACEC goals
NEW MEXICO			
Ojo Caliente	Private	9,680	Acquire state and private lands
	State	1,794	
Elk Springs	Private	3,819	Acquire non-public lands
	State	90	
Lower Gorge	Private	2,826	Acquire selected private lands
	State	388	
Overflow Wetlands	Private	2,528	Acquire 1,700 state and 1,600 acres of private land
	State	1,885	
Copper Hill	State	2,476	Acquire state and private lands
	Private	2,142	
Winter Range	Private	2,305	Acquire state and private lands
North Pecos	Private	1,965	Acquire state and private lands
	State	1,180	
Mescalero Sands	State	1,766	Acquire 1,800 state and 32 acres private lands
	Private	314	
Ojito	State	1,580	Acquire non-public lands
	Private	985	
Pecos River / Canyon Complex	State	829	Acquire 960 non-federal surface and 320 acres non-federal mineral estate
	Private	125	
ARIZONA			
Three Rivers Riparian Area	Military	16,814	Acquire private and state lands
	Private	13,442	
	State	3,660	
	Parks & Recreation	31	
White Margined Penstemon Reserve	Private	14,679	Acquire private and state lands
	State	2,124	
McCracken Desert Tortoise Habitat	Private	10,474	Acquire private and state lands
	State	322	
Burro Creek	State	8,687	Acquire identified private and state lands
	Private	7,476	
Joshua Tree / Grand Wash Cliffs	Private	5,141	Acquire private and state lands
	National Recreation Area	20	
	Park Service	14	
Wright-Cottonwood Creek	Private	3,345	Acquire state and private lands
	State	538	
Tanner Wash	Private	2,540	Acquire private lands
Gila River Cultural	Private	803	Acquire private lands

State / ACEC	Inholding Ownership	Acres	Inholding Directive Summary
	State	658	
	Game & Fish	193	
Carrow-Stevens Ranches	Private	691	Acquire non-federal surface and sub-surface rights
	State	600	Acquire 1,140 acres
Waterman Mountains	Private	478	
UTAH			
	State	13,510	Acquire fee title or interest in lands as available
Nine Mile Canyon	Private	9,579	
	State	1,927	Acquire non-federal lands
Little Creek Mountain	Private	316	
	State	1,831	Acquire fee title or interest in lands as available
Red Creek Watershed	Private	1,457	
	State Wildlife Reserve	1,223	
	Private	1,508	Acquire fee title or interest in lands as available
Lower Green River	State	958	
	Tribal	150	
	State	1,263	Acquire fee title or interest in level 2 lands as available
Pariette Wetlands	Private	831	

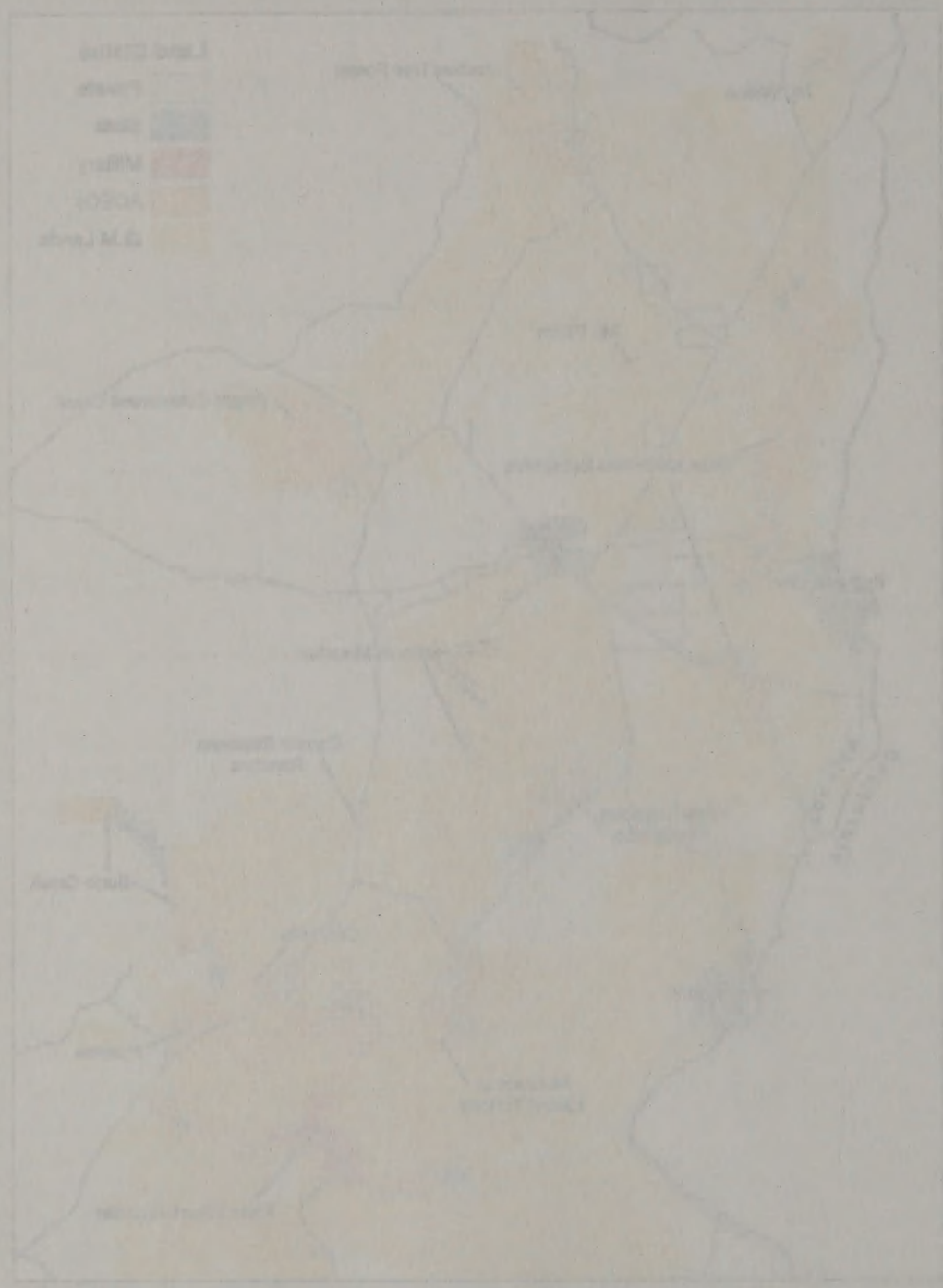
Despite the extent and seriousness of inholdings problems, the BLM has failed to acquire inholdings within ACECs that have directives to do so. We talked directly with the BLM real estate personnel at each of the four state offices, and were told that the agency does not currently have a system in place to track land acquisitions specifically within ACECs. The national office of the BLM has promised that such a system will be in place for 2004 and will enable public tracking and dissemination of land acquisition information for ACECs and other special management areas. Aside from the few cases where site specific management plans have detailed the acquisition of inholdings, there is currently no way to determine the status of ACEC land acquisitions by the BLM other than by a direct examination of the land plats on file with the BLM at each state office.

We were able to determine from information posted on the Department of the Interior's web site that some funds for land acquisitions were *requested* by state offices in 2002 for acquiring ACEC inholdings. For 2002, only New Mexico and Colorado requested funds for land acquisition within ACECs. Colorado requested \$2,500,000 for the acquisition of 2,000 acres within the Gunnison Basin ACEC and New Mexico requested \$641,000 for the acquisition of 43 acres within the La Cienega ACEC. The outcome of each request or information regarding subsequent land acquisition was not available. This failure to plan for and document inholding acquisitions within ACECs represents a major failure on the part of the agency to ensure that inholding directives are carried out.

Inholdings Disaster: Kingman Field Office, AZ

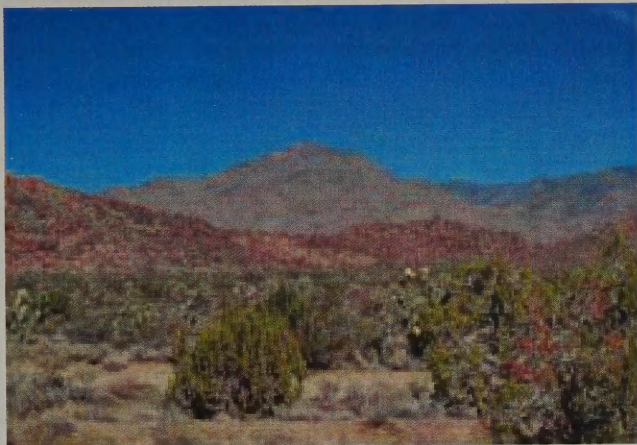


The Kingman Field Office of the Arizona BLM has the dubious distinction of administering five of the eleven ACECs within the four corners states with over 10,000 acres of inholdings. Situated on the northwestern border of Arizona and California, the field office administers 13 ACECs, some of the largest of which are examined here. Although it is commendable that the Arizona BLM has chosen to designate several large ACECs, the amount of inholdings present in several of these ACECs, and the BLM's inability to consolidate its land holdings within them, compromises their value as resource protection areas.

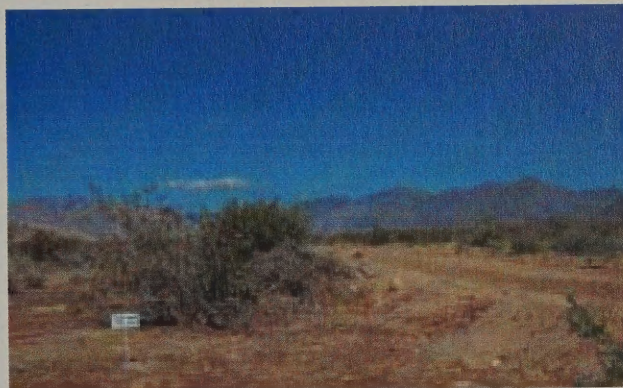


The map shows the distribution of land cover and water bodies in the Western Hemisphere. The legend indicates that the map is color-coded to show different types of land cover and water bodies. The map shows that the majority of the land cover in the Western Hemisphere is composed of forest and agricultural land. Water bodies are also shown, including the Atlantic Ocean, the Pacific Ocean, and the Indian Ocean. The map is oriented with North at the top.

White-Margined Penstemon and McCracken Desert Tortoise ACECs: Riddled With Holes

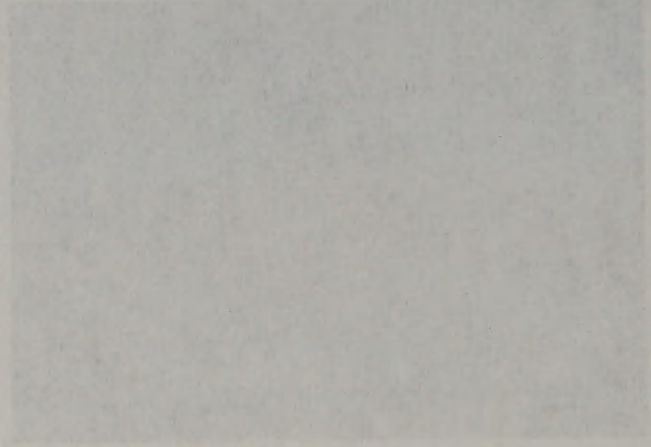
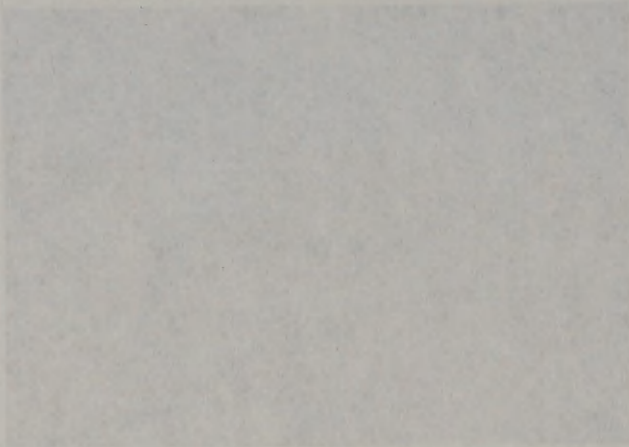


The White-Margined Penstemon and McCracken Desert Tortoise ACECs are located within 10 miles of each other and both ACECs are administered by the Kingman Field Office of the Arizona BLM. Both of these ACECs are among the largest in all of the four corners states, and both are also among the list of ACECs with greater than 10,000 acres of inholdings (Table 16). The checkerboard pattern of inholdings within the ACECs and their proximity to the popular recreation area of Lake Havasu make them extremely vulnerable to the rapid and devastating effects of urban sprawl (see map, p.56). Unfortunately, the threat of development has become reality for the White-Margined Penstemon ACEC, which is currently being surrounded by and subsumed within a 150,000 acre subdivision named Stagecoach Trails (above, right). Given the local 'ranchette' subdividing of this area, the McCracken Desert Tortoise ACEC is likely to suffer a similar fate within the foreseeable future unless immediate action is taken to consolidate federal land ownership.

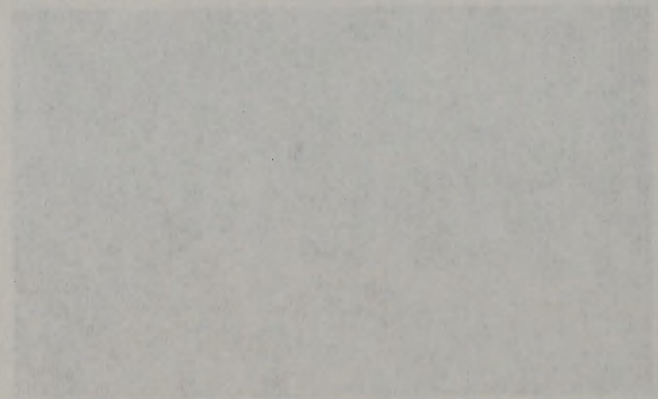
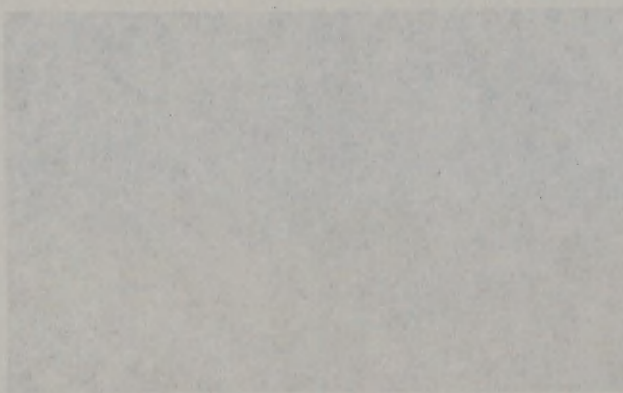


The above pictures show the devastation that urban sprawl on private inholdings can bring to otherwise protected areas. The images show, clockwise from top left 1) Pristine habitat within the White-Margined Penstemon ACEC 2) the main entrance way for the new development of Stagecoach Trails 3) the main roadway for the development under construction, and 4) a lot for sale within the White-Margined Penstemon ACEC, the sign indicates it is lot number 3,361.

The White-Margined Penstemon ACEC was designated to protect populations of the sensitive white-margined penstemon. The ACEC also has populations of the sensitive Sonoran desert tortoise. The McCracken Desert Tortoise ACEC was designated to protect the Sonoran desert tortoise. Both ACECs have directives to limit the issuance of new Rights-of-Way (ROWs). In the case of the White-Margined Penstemon ACEC, the BLM is required to limit 'new major' ROWs to existing corridors. Despite this limitation, we observed numerous crisscrossing roads and survey markers within the ACEC boundary. Admittedly, given the checkerboard pattern of land ownership within the ACEC, many 'corridors' are likely to predate the ACEC's designation. Both of the ACECs also have directives to acquire private and state land inholdings, an objective which has obviously not been implemented in the White-Margined Penstemon ACEC. The BLM was unable to provide any documentation for the acquisition of inholdings within the McCracken Desert Tortoise ACEC and we were told by field office personnel that it is likely that no acquisitions have taken place. Both of the ACECs also have directives to limit ORV use to existing roads and trails. We observed numerous instances of unregulated ORV use at both of the ACECs, an occurrence that is only likely to increase in frequency as the Stagecoach Trails development becomes occupied. Additionally, the management directives for the White-Margined Penstemon ACEC include instructions to monitor both white-margined penstemon and



The Whitcomb Foundation and the Texas Desert Project are located in the heart of the Texas desert. The project is a vast, flat, arid landscape, stretching for miles in all directions. The terrain is a mix of sand, gravel, and small rocks, with sparse, low-lying desert vegetation. The sky is a clear, pale blue, and the overall atmosphere is one of quiet solitude and natural beauty. The project is a testament to the foundation's commitment to environmental stewardship and the preservation of the desert's unique ecosystem.



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Sonoran desert tortoise populations and develop an integrated RMP for the species' management. No site-specific RMP has yet been drafted, and the impending development will make the implementation of any conservation plan for these species difficult, if not impossible, to follow through with. While the designation of these ACECs was a great step forward for the Arizona BLM's conservation of two sensitive species, the agency's inability to prevent urban encroachment is resulting in a disaster for these areas.

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research. It also provides a brief overview of the methodology used in the study.

2. The second part of the report is a detailed description of the study. It includes a description of the sample, the data collection methods, and the analysis techniques used. It also discusses the results of the study and the conclusions drawn from the data.

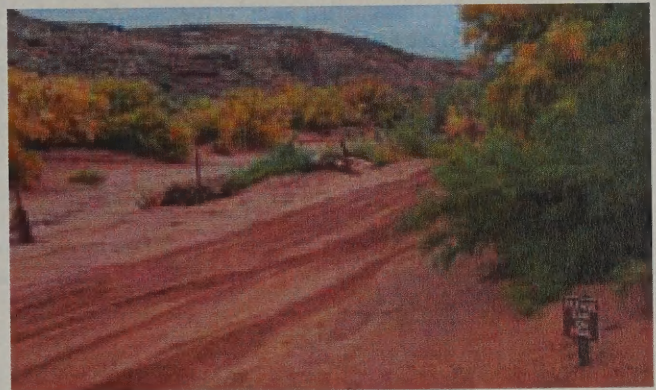
3. The third part of the report is a discussion of the findings of the study. It compares the results of the study with the findings of previous research and discusses the implications of the study for future research. It also provides a summary of the key findings of the study.

4. The fourth part of the report is a conclusion. It summarizes the main findings of the study and provides a final statement on the importance of the study. It also includes a list of references and a list of appendices.

Off Road Vehicle (ORV) Use & R.S. 2477

The use of ORVs for recreation on BLM land continues to increase dramatically. Sales in all categories of ORVs (sport utility vehicles (SUVs), pickup trucks, off-road motorcycles and all-terrain vehicles (ATVs)) have increased dramatically in the last decade. ATV sales in Arizona increased by an average of 29% *per year* in the period 1995-1998, with similar trends reported for Utah (St. George Field Office, Utah BLM, 2003). The effect of this dramatic rise in ORV use cannot be underestimated. ORV use contributes to habitat fragmentation, destruction of plant cover and the displacement of local communities, facts that are well documented by the BLM (BLM Montana State Office and Forest Service Northern Region, 2001). ORV use also degrades water quality through increased erosion rates and sediment run off, increased severity of flood events and increased turbidity (CEQ 1979, Brown 1994). Coupled with this threat is an antiquated statute known as Revised Statute 2477, which the ORV industry along with individual ORV users and ORV clubs are exploiting to open up more federal land for legal ORV recreation.

The Warner Ridge / Ft. Pierce ACEC: Illegal ORV Use is Sanctioned by the BLM



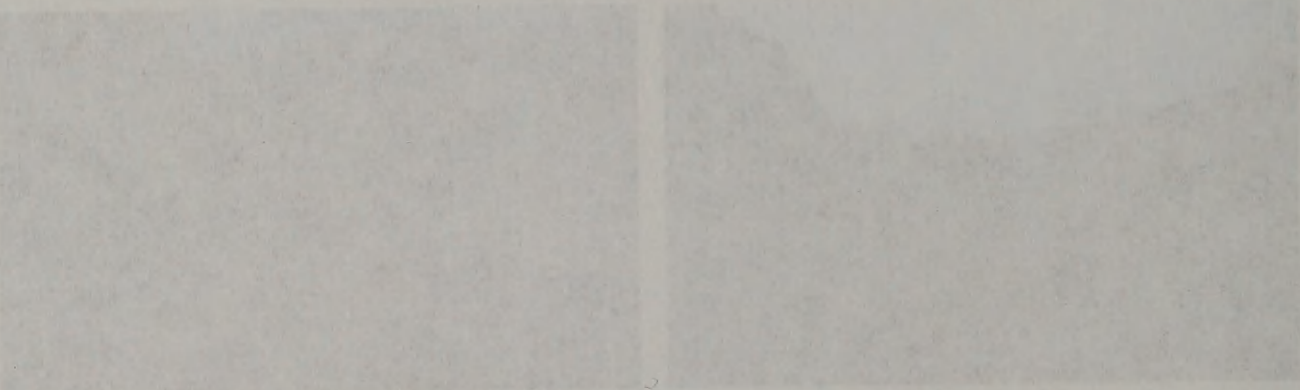
The Warner Ridge / Ft. Pierce ACEC is within the St. George Field Office of the Utah BLM, on the border with Arizona and adjacent to the Arizona Strip, a popular ORV recreation area. The ACEC was designated to ensure that the important riparian values of the Ft. Pierce Wash, the sensitive spotted bat, and two federally listed plant species, the endangered dwarf bear-claw poppy and the threatened siler pincushion would be protected from harmful uses including ORVs and livestock grazing. Additionally, the riparian zone within the ACEC includes important potential habitat for the threatened southwestern willow flycatcher.

The 4,281-acre Warner Ridge / Ft. Pierce ACEC was designated in 1999, along with a 41,000-acre 'open-use' ORV area just to the north of the ACEC. At the time of its designation, the ACEC was plagued with ORV problems caused by enthusiasts using the Ft. Pierce Wash as a link between the ORV areas on the Utah side of the border with popular ORV trails on the Arizona Strip. In fact, in recognition of the threat posed by ORV use to ACEC values, a team of agency biologists recommended that ORVs be prohibited entirely within the ACEC. The ACEC designation directed the BLM to limit ORV use to "designated roads and trails only," of which none exist. To circumvent this closure, the BLM recently approved the designation of a permanent ORV trail within the ACEC linking the "open use" ORV area in Utah with the ORV trails on the Arizona Strip.

The impetus for this about-face in policy towards the protection of the Warner Ridge / Ft. Pierce ACEC came from the Wizards Motorcycle Club, an ORV users group that sponsors the annual Rhino Rally Race that takes place partially within the ACEC. Since the ACEC's designation, the BLM has continued to allow the use of the Warner Ridge / Ft. Pierce ACEC for the yearly rally race through the issuance of a special use permit. As early as 1999, the Wizards Motorcycle Club proposed a permanent ORV trail through the Warner Ridge / Ft. Pierce ACEC to accommodate the race, and in July of 2003, the BLM authorized the construction of a permanent trail. Incredibly, the BLM has delegated the enforcement of the new ORV trail rules

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The Western Region: The Threats to the BLM

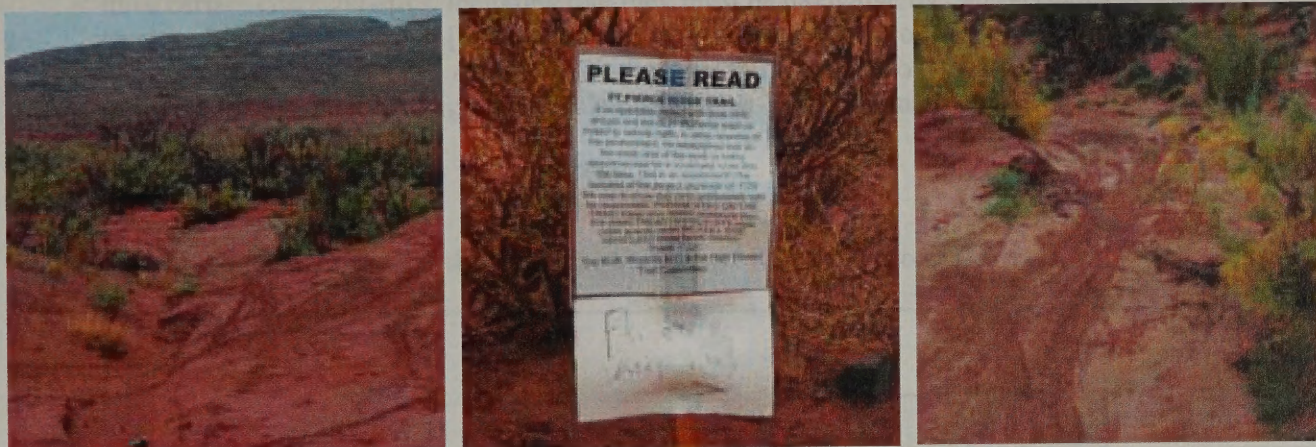


The Western Region (WTR) is the largest of the four BLM regions, covering 1.5 billion acres. The WTR is the most diverse in terms of land use, with a wide range of habitats and resources. The WTR is also the most heavily used by ORVs, with an estimated 1.5 million vehicles per year. The WTR is the most threatened by ORV use, with significant impacts on habitat, resources, and the BLM's ability to manage the land.

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to the ORV user groups themselves. Meanwhile, illegal ORV use within the ACEC has continued unabated through the present day, as documented in the photos above and below.



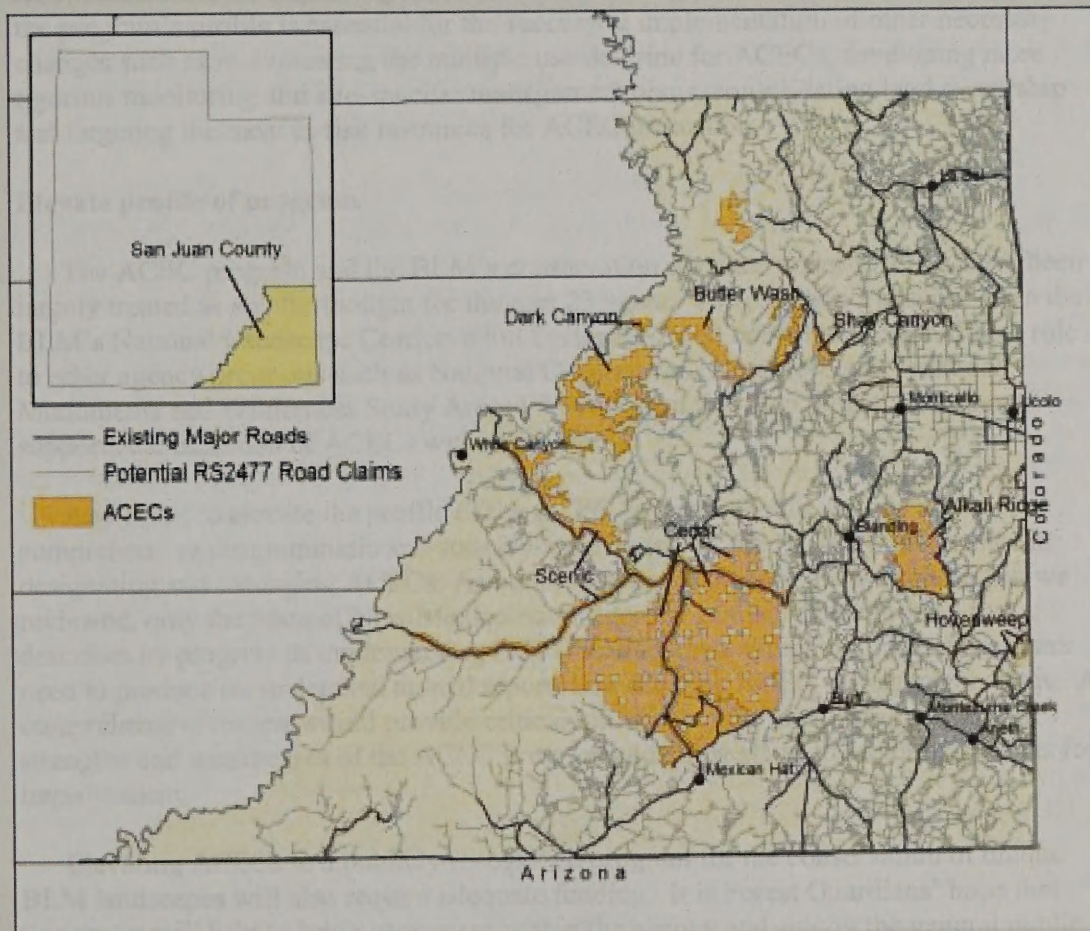
The Warner Ridge / Ft. Pierce ACEC, including its riparian habitat, is being destroyed by unregulated ORV use. These photos, taken in the fall of 2003 show, clockwise from upper left 1) the newly designated ORV trail within the riparian zone, as well as off-trail usage to the left 2) the newly designated ORV trail through the Ft. Pierce Wash 3) off-trail ORV tracks over a downed fence 4) a sign indicating that the new Ft. Pierce Ridge Trail is a joint project between the BLM and the Wizards Motorcycle Club and, 5) off-trail ORV damage to the riparian zone.

Forest Guardians appealed the BLM's July 2003 decision to authorize the construction of a permanent ORV trail through the Warner Ridge / Ft. Pierce ACEC. There is ample documentation to prove that the BLM has not enforced the existing ORV closure of the ACEC and that creating a formal trail will contribute to further ORV-caused degradation of ACEC values. For example, the BLM itself acknowledged in its analysis that the construction of the trail will likely lead to higher volumes of ORV traffic. Additionally, resource specialists within the BLM have criticized the agency's issuance of the race permits and its failure to enforce the existing ORV closure rule, including a 1998 BLM report that recommends closure of the entire Ft. Pierce Wash to ORV traffic. It is also likely that the project violates the Endangered Species Act, as it was authorized without consultation with the U. S. Fish and Wildlife Service over the known populations of federally listed species. The construction of the Ft. Pierce Ridge Trail through the Warner Ridge / Ft. Pierce ACEC is an unfortunate example of how the agency has allowed pressure from special interest groups to override its ACEC mandate and undermine the protection of the important resource values for which the ACEC was designated.

R.S.2477 refers to a highly controversial law, Revised Statute 2477 of the 1866 Mining Act. The original purpose of the law was to allow the settlement of the western United States by permitting the construction of roads across public lands. Congress repealed the law in 1976 with the passage of FLPMA, which required that new road construction be subject to environmental review. The R.S.2477 debate was revived in 1988 by then Secretary of the Interior Donald Hodel. Hodel championed anti-wilderness advocates' slogan "claim a road – stop a wilderness" by issuing a policy, in contradiction to existing law, allowing old or abandoned jeep trails to be claimed as county roads under R.S.2477. Since that time, many R.S. 2477 claims have been made by anti-wilderness groups challenging that old jeep trails, ORV routes, foot paths and even washes are county roads (over 5,000 in Utah alone). Once a claim is made, it is imperative that the claim be repudiated immediately, lest it be recognized as a county controlled right-of-way. Once an R.S.2477 claim is recognized, it can largely preclude an area from future wilderness consideration. An April 9, 2003 Memorandum of Understanding (MOU) between the Utah BLM, the state and counties of Utah and the Department of Interior has helped to clarify some requirements for R.S. 2477 claims for these entities. The MOU states that neither the state of Utah nor any Utah counties will make R.S. 2477 claims for roads that lie within congressionally designated Wilderness or Wilderness Study Areas designated "on or before October 21, 1993, under Section 603 of FLPMA" (DOI, 2003). Unfortunately, this still leaves open the possibility that the state or counties may make

road claims within ACECs that lie outside Wilderness or Wilderness Study Areas, but which may still qualify as roadless areas. The MOU does require that road claims must have certain characteristics, including that they must be navigable by “automobiles or trucks with four wheels and [have] been the subject of some type of periodic maintenance” (DOI, 2003). Additionally, the legal ramifications of the MOU for individuals or groups seeking to make claims under R.S. 2477 remain unclear.

San Juan County, UT: The Danger of R.S. 2477 Road Claims



This map shows the distribution of ACECs and potential R.S. 2477 road claims in San Juan County, Utah. ACECs that contain potential claims are labeled on the map and include: Cedar Mesa, 309.4 miles; Scenic, 193 miles; Alkali Ridge, 74.6 miles; Dark Canyon, 14.6 miles; Shay Canyon, 11 miles; Butler, 4.4 miles; Hovenweep 4.4 miles. Potential road claims on this map are an estimate, as the Utah Attorney General's office has so far declined to release data on potential R.S. 2477 routes that it submitted to the Interior Department in 2002.

total claims which are subject to the outside of Wilderness or Wilderness Study Areas, but which may still qualify as roadless areas. The MOU does require that roadless areas must have a certain characteristic, including that they must be navigable by "any mode of travel" with four wheels and [insert] from the subject of some type of vehicle. Additionally, the legal jurisdiction of the MOU for individual or groups seeking a roadless area under R.S. 2477 is not affected.

Map of County of the Range of R.S. 2477 Road Claims



The map shows the range of R.S. 2477 road claims, which are subject to the outside of Wilderness or Wilderness Study Areas, but which may still qualify as roadless areas. The MOU does require that roadless areas must have a certain characteristic, including that they must be navigable by "any mode of travel" with four wheels and [insert] from the subject of some type of vehicle. Additionally, the legal jurisdiction of the MOU for individual or groups seeking a roadless area under R.S. 2477 is not affected.

RECOMMENDATIONS

One of the continuing problems for BLM landscapes in general, and in particular ACECs, is that they continue to exist in obscurity. While there is no doubt that many BLM landscapes are increasingly being loved to death, the majority of the public is unaware of ACECs or their role in the conservation of unique BLM resources. As long as this is the case, agency management decisions will continue to be influenced by special interests, and unfortunately, the agency itself will continue to be shielded from public criticism. Because of this, Forest Guardians has identified the goal of elevating the profile of the ACEC mandate, both within and outside of the agency, as the top recommendation for improving the success of this program. We believe that elevating the program's profile is essential for the successful implementation of other necessary changes such as re-evaluating the multiple use doctrine for ACECs, developing more rigorous monitoring and site-specific management plans, consolidating land ownership and targeting the most at-risk resources for ACEC protection.

Elevate profile of program

The ACEC program and the BLM's conservation mandate under FLPMA have been largely treated as an afterthought for the past 23 years. The program's absence from the BLM's National Landscape Conservation System (NLCS) confirms its subordinate role to other agency programs such as National Conservation Areas (NCAs), National Monuments and Wilderness Study Areas (WSA). As a first step, Forest Guardians supports the inclusion of ACECs within the NLCS.

Any effort to elevate the profile of the ACEC program should include a comprehensive programmatic and state-by-state review of the BLM's performance in designating and managing ACECs. As our review has shown, of the four states that we reviewed, only the State of New Mexico has a rigorous annual review process that describes its progress in implementing ACEC management directives. All of the states need to produce more detailed annual reports that describe ACEC management status. A comprehensive review would provide critical information for identifying the current strengths and weaknesses of the ACEC program and allow states to target those areas for improvement.

Elevating ACECs to a publicly recognized program for the conservation of unique BLM landscapes will also require adequate funding. It is Forest Guardians' hope that this report will help to bring awareness within the agency and among the general public of both the plight and the potential of the ACEC program. Only by raising awareness of the ACEC program can we hope to influence the BLM to make ACEC funding a priority. Likewise, only with public support will the BLM be successful at securing adequate funding from Congress for the implementation of needed reform measures such as site-specific management plans and inholding acquisitions. Elevated congressional support for BLM conservation programs, including ACECs, will be vital for the agency to meet its conservation mandate under FLPMA.

Prohibit Incompatible Uses

When viewed as a land use planning tool to ensure protection of the millions of acres of unique resources the BLM is responsible for stewarding, the ACEC mandate actually provides the agency with an opportunity to be proactive rather than reactive. Yet under the current dominant management paradigm the agency often waits to implement conservation principals until a federal mandate from the EPA or the USFWS requires them to take action to restore a polluted waterway or protect a species under the Endangered Species Act (ESA). As our report details, in most circumstances BLM continues to interpret its multiple use mandate to mean that nearly all uses should be allowed in nearly all places, even though the mandate of FLPMA expressly calls for "the use of some of the land for less than all of its resources." This significant agency blind spot is all the more inappropriate in areas—namely ACECs—where the BLM has proactively recognized the presence of values in need of special management attention.

Notwithstanding the incompatibility of many of the traditional uses of BLM lands such as oil and gas development, livestock grazing and mining, with the protection of the unique values intended to be protected by ACEC designation, the BLM continues to permit uses that damage unique and irreplaceable public values. Given the fact that the agency has already recognized the need for special management attention in order to protect unique resource values, Forest Guardians believes that many ACECs are logical places for the agency to invoke the mandate of FLPMA to manage "some of the land for less than all of its resources" in order to ensure protection and, in many cases, recovery and restoration of important public values.

Overwhelming scientific information informs us that long-term damage to arid and semi-arid landscapes due to oil and gas development, livestock grazing, ORVs and mining is widespread in the western United States. Forest Guardians recommends that the agency invoke both the precautionary principle, recognizing that recovering damaged resources is a much more difficult and risky venture than preserving healthy ones, and its conservation mandate under FLPMA to shift the current management paradigm from one that emphasizes resource extraction to one that places a premium on resource protection. In particular, we believe that the BLM should conduct a site-specific review of each ACEC with the objectives of amending RMPs and developing site-specific management plans to explicitly prohibit uses that are incompatible with the protection of ACEC resource values.

Develop Site-Specific Management Plans

As pointed out earlier, ACECs are in many instances the poor step-child of other agency management and protection priorities, be they reacting to industries' demands to permit damaging uses or protecting other higher profile areas such as Wilderness and Wilderness Study Areas (WSAs), Wild and Scenic Rivers (WSRs) and designated critical habitat for threatened and endangered species.

One of the ways for this poor step-child reality to change is for the BLM to develop site-specific management plans to ensure not only prioritization of these areas but also their protection. Our review shows that when the agency takes the time to plan for an

area's protection in a detailed manner and on a site-specific basis, it generally does a better job at ensuring that unique values intended to be protected are in fact protected.

Forest Guardians recommends the BLM begin to develop site-specific management plans with full public input and review for the vast majority of ACECs that currently do not have site-specific management plans.

Consolidate Land Ownership Patterns

Private and state land inholdings within ACECs are a growing threat to the program, as they are to many other publicly managed landscapes throughout the West. Inholdings are especially widespread within the larger ACECs in Arizona and Utah. There are currently more than 500,000 acres of private inholdings within ACECs in the four corners states. Some of this acreage has been developed for commercial real estate in the last decade, while other inholdings are slated to be developed in the near future.

Forest Guardians recommends that each state office of the BLM identify priority inholdings for public acquisition. These inholdings could be acquired through outright purchase or via land exchanges with other federal agencies or private entities. This identification process should rely on management directives provided in existing management plans that call for the BLM to acquire inholdings within ACECs.

Equally significantly, the BLM must ask for and congress must appropriate the funds necessary to consolidate land ownership patterns. In the rapidly urbanizing West, land consolidation is a critical first step to prevent landscape fragmentation due to incompatible land uses.

Given the agency's history of engaging in ethically and scientifically questionable land exchange deals throughout the West, Forest Guardians makes this recommendation with some degree of trepidation. However, failure to aggressively confront the threat of inholdings, whether on an isolated or more comprehensive scale that deals with the checkerboard pattern of land ownership imposed by the PLSS, is to allow the values of these lands to be sacrificed to the whims of real estate developers and other incompatible uses and cannot be allowed.

Designate Larger Areas

The field of landscape ecology has evolved considerably since the mid 1970's when the BLM first began considering how to utilize the ACEC mandate as a land use planning and habitat protection tool. Since then, it has become well accepted among conservation scientists that larger protected areas provide multiplicative benefits for preserving and protecting critical ecosystem processes and imperiled fish and wildlife species (Soule et al. 1992).

Notwithstanding the fact that more recent ACEC designations, especially those in Arizona and Utah, have been larger than earlier designations, the BLM still often designates extremely small ACECs, even when intending to protect a species or an ecosystem process that could not be viable within the small confines of the ACEC boundary. A classic example of this flawed approach was evident in the most recent ACEC designation in the western United States, involving Otero Mesa, a relict grassland

in south-central New Mexico that provides critical habitat for a number of imperiled wildlife species and which is slated to be developed for oil and gas. In its recently released plan to allow for oil and gas development within Otero Mesa the BLM also designated a 20,000-acre ACEC intended for the protection of the critically imperiled northern aplomado falcon. However, the northern aplomado falcon requires large, undeveloped tracts of ecologically healthy Chihuahuan desert grassland. Marginalizing the falcon's needs to a mere 20,000 acres, much of which will be surrounded by a landscape degraded from oil and gas development, is inadequate for the species recovery and a discredit to the ACEC mandate.

Forest Guardians recommends the BLM revisit the stated rationale for the protection of each ACEC and, where relevant, conduct a landscape level analysis to assess whether or not the stated values will be protected by the current ACEC designation. Once this analysis has been conducted, we recommend that the BLM revise and, where necessary, enlarge current ACEC designations to ensure the protection of unique ecosystems, species, recreational values and other important public values.

Identify and Protect Ecological Hot Spots

The importance of BLM administered lands to the preservation of western biological diversity cannot be understated. BLM lands are important to biodiversity protection not only because of their total size, but because of the diversity of landscapes they include, from alpine tundra to desert grasslands to lush riparian oases. These lands contain a wide array of habitat types vital to the survival of hundreds of rare and threatened species. Given the importance of BLM lands in stewarding this biodiversity, and considered together with the many threats to BLM resource values and the absence of a strong conservation mandate within the agency, the ACEC program must be seen as critical for providing a new emphasis on desperately needed protections for biodiversity within BLM-administered lands.

As we have done in this report, Forest Guardians recommends that the BLM identify a suite of focal species (keystone and indicator) that best represent the unique biological and ecological values present within BLM-administered landscapes in the four corners states. We strongly recommend that the agency use data on these species of interest as a means to assess whether or not these unique species and their habitats are being adequately protected by the current ACEC system. In addition, as we have done in this report, we recommend that the BLM conduct an analysis to identify specific areas that harbor high numbers of multiple imperiled species and again assess whether or not these unique values are being adequately protected by the current ACEC system. Through such an integrated approach, we believe the BLM can refine a valuable conservation model for the ACEC program that emphasizes the concepts of connectivity and large-scale habitat protection necessary for species survival and recovery. Once these two critical steps have been completed, each state office of the BLM should recommend ACEC designations of adequate size and scope to protect biological hot spots and focal species on a landscape scale.

In the face of ever increasing threats to ACEC resources, a more ambitious, well planned strategy is needed for protection of larger watersheds, ecosystem integrity, regional connectivity and the conservation of regional ecotypes. Some state offices of the BLM have done a better job than others in reaching for this goal. Notably, more recent

ACEC designations, particularly in Arizona and Utah have involved the designation of much larger areas and regional connectivity with other ACECs, WSAs and Wilderness Areas. Unfortunately, these areas often still suffer from vast acreage of private inholdings, an agency mentality that allows incompatible land uses to supercede the need for resource protection and a lack of rigorous management.

Part and parcel to the need for more strategic planning of ACEC designations is the need for more detailed ACEC management plans, monitoring and reporting. There is a real urgency for the agency to develop site-specific ACEC management plans, base them in sound science, and monitor and report the results of their conservation efforts. The agency still has a long way to go if it is to affect lasting protection for our 'areas of critical environmental concern' and elevate the profile of the BLM as a conservation agency.

CONCLUSION

The BLM is the nation's largest land manager and will continue to play an increasingly important role in preserving a unique part of this country's cultural and natural heritage. However, this heritage is increasingly at risk because of the reactive management paradigm that the BLM continues to operate under, coupled with the influence of special interests over the agency's management policies. The greatest promise of the ACEC mandate is that it gives the BLM an opportunity to demonstrate that it can make decisions that restrict or prohibit incompatible land uses within these unique landscapes, even in the face of political pressure and special interests. Through a campaign of public awareness and increased scrutiny of ACEC designations and management practices, Forest Guardians and other likeminded groups, together with the general public, have begun to affect the conservation climate within the BLM. Through this process, we will aid the reform of the ACEC program and ultimately catalyze the BLM to embrace its conservation mandate under FLPMA.

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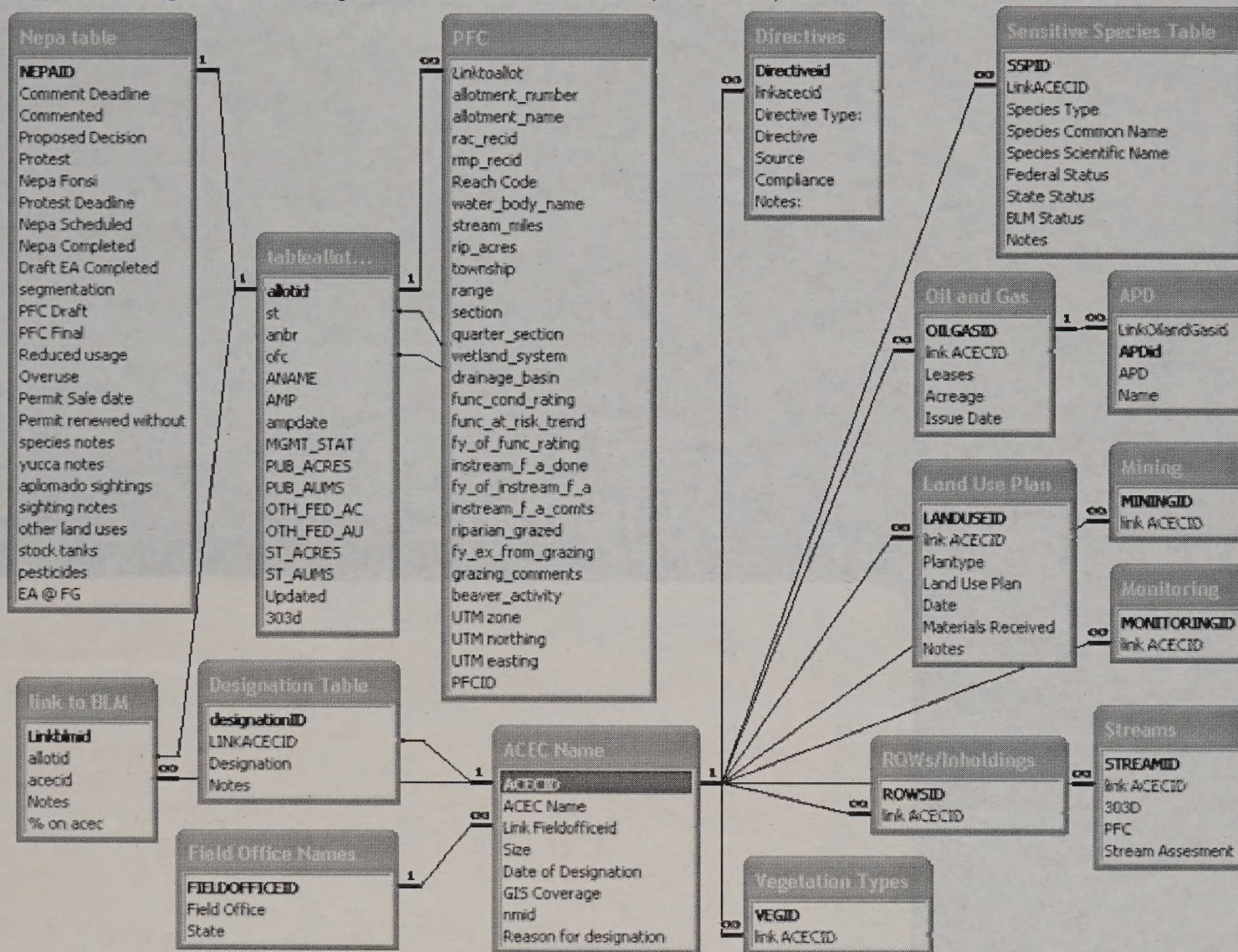
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And

Cathy Carlson of the Center for the Wild West

For their contributions to this report.

Appendix A. Diagram of relationships for Forest Guardians' Colorado, New Mexico, Arizona and Utah BLM ACEC Database.



The vast majority of information summarized within this report was compiled through the construction of a relational database, diagrammed above. Each box represents a table within the database, and each line represents a link between specific fields within those tables. The light blue text at the top of each box describes the type of information encoded in each table and the black text within each of the boxes are field names for each column of data contained in the table.

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